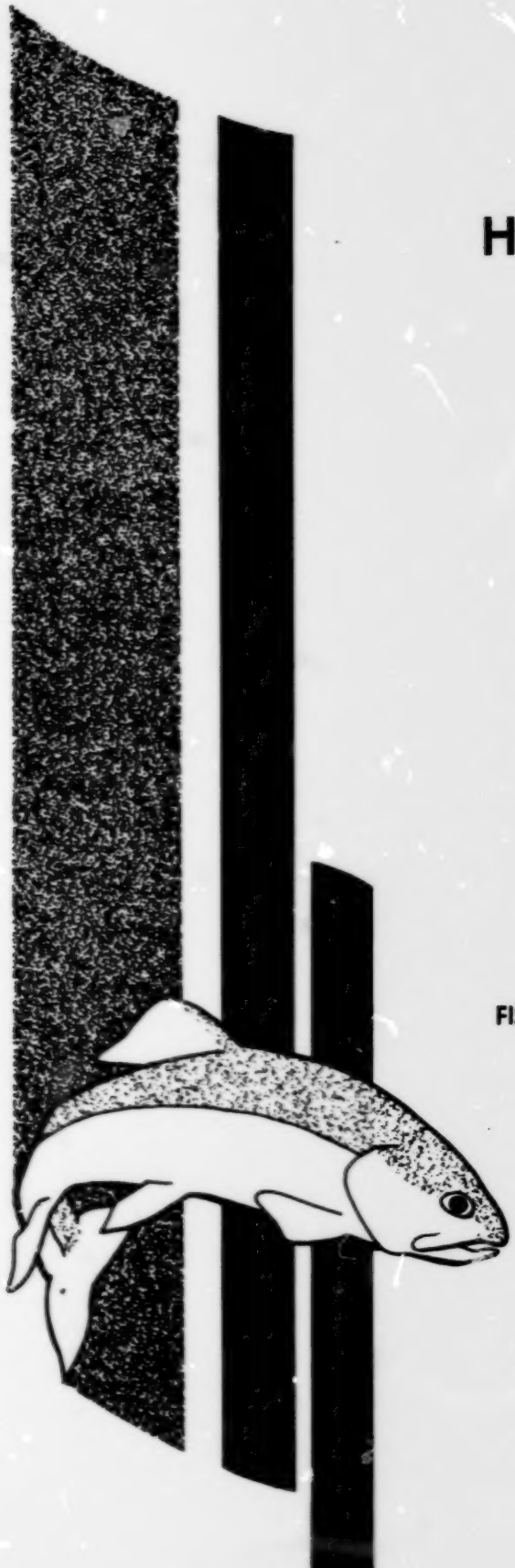

STEELHEAD HARVEST ANALYSIS 1985-86

by

Susan J. Billings

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ABSTRACT

Billings, S.J. 1987. Steelhead Harvest Analysis, 1985-86. Fisheries Technical Circular No. 76, p.

For the past twenty years, at the end of the angling licence year, a questionnaire has been sent to a sample of anglers who fished for steelhead in British Columbia. Information was requested on their fishing activity and catch success for incorporation into the Steelhead Harvest Analysis. Over this time there have been considerable changes in licence sales, the number of days spent fishing, catch and release of steelhead and regulations.

In the 1985-86 season, 25,619 steelhead angling licences were sold, 12% of which were to nonresidents of B.C. Questionnaires were sent to 63% of licencees and a response was received from 57% of those contacted. Of the respondents, 77% fished for steelhead at least once and, of the active anglers, 59% were successful in landing a fish.

The provincial steelhead catch has increased significantly in recent years. This year's catch of 145,344 fish was slightly less than the previous years record high. Recent increases in catch are a combined result of increased stock abundance and repeat captures of released fish. Catch per angler day for the province was 0.68. Reduced possession quotas as well as steelhead release regulations have resulted in a decreased proportion of the steelhead catch being kept, dropping from 63% in 1970-71 to 13% in 1985-86.

Of the active anglers, 37% kept between one and five fish and 3% kept more than five fish. Provincial angling effort continued to increase since an all-time low in 1981-82. The Chilliwack/Vedder River reported the most fish caught (17,159) followed by Stamp/Somass (16,316) and Dean (8,868) rivers. Vancouver Island continued to report the highest number of steelhead caught in any region. Hatchery fish, caught primarily on Vancouver Island and the Lower Mainland, comprised approximately 27% of the total provincial catch. Almost half of the Vancouver Island catch was of hatchery origin. The release ratio for hatchery fish averaged 78% compared to 90% for wild fish. Wild steelhead release regulations were in effect throughout the 1985-86 season on all Vancouver Island and Lower Mainland streams. Temporary release times were also established on numerous rivers in the Skeena Mainland area.

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INTRODUCTION

Since 1966, all anglers fishing for steelhead in the province have been required to purchase a steelhead licence and punchcard in addition to their basic angling licence. This provided an opportunity for fisheries biologists to evaluate the steelhead trout sport fishery by conducting a mailout questionnaire survey of steelhead anglers. The result today is twenty years of trend information on angling effort and catch success for steelhead streams in the province based on the survey results.

Originally, the Steelhead Questionnaire only asked if the angler fished for steelhead and, if so, how many days were fished and how many steelhead were kept from each stream. Five years later, in the 1970-71 fishing season, information was also requested on the number of steelhead released. The voluntary release of steelhead reported at that time comprised about 40% of the total catch.

The initiation of the Federal/Provincial Salmonid Enhancement Program (S.E.P.), in 1977, was an opportunity to expand the culture of steelhead in hatcheries. Many streams have since been stocked with hatchery reared fry and smolts as a method of enhancing steelhead populations. The first sizeable returns of hatchery steelhead began showing in the angler's catch in 1980 and the Steelhead Questionnaire was altered once again. Anglers were asked to report the number of wild and hatchery steelhead kept and released for each stream fished. This additional information has been useful in determining the success of the hatchery program as well as monitoring the abundance of wild stocks.

Wild searun trout, which include steelhead and anadromous cutthroat, are low in natural abundance and require careful management to prevent overharvest and ensure adequate spawning. Steelhead trout are harvested by a number of fisheries including a high-seas gillnet fishery, several different inshore commercial fisheries, native food fisheries, and the sport fishery. The number of steelhead caught incidentally in the commercial and native food fisheries is unknown. Efforts are being made, however, by monitoring the commercial landings to determine what runs are most affected and to estimate the number caught. The native Indian food fishery on the Skeena and Fraser rivers is also being monitored to estimate the steelhead harvest.

Those steelhead which escape the commercial fleet and Indian food fishery are available to the sport angler. This is presently the only user group whose "take home" catch can be easily regulated to ensure that enough steelhead survive to spawn. This is also the only user group for which reasonable steelhead catch estimates are currently available. Monitoring run strength for steelhead stocks is an important activity in fisheries management and is accomplished by catch analysis, snorkel and creel surveys, and juvenile fish abundance surveys. These data guide the regulation of the sport fishery and serve as the basis for negotiations with the federal Department of Fisheries and Oceans and native groups to increase the steelhead escapement.

Since 1977, the province's role in the Salmonid Enhancement Program (S.E.P.) has been to protect and enhance stocks of steelhead and anadromous cutthroat trout. Nine years of S.E.P. funding has resulted in a greatly increased knowledge of these fish stocks. Surveys of stocks in the late 1970's revealed that many runs of steelhead were declining, particularly in southern British Columbia. Essential to the management and restoration of steelhead are habitat protection, harvest regulations, fish culture, and habitat improvement. Habitat related activities include the removal of barriers to fish migration; construction of spawning platforms to increase available spawning habitat; placement of boulders or log cover in streams to increase rearing habitat for juvenile fish; and stabilization of stream banks by establishing riparian vegetation, reinforcing with rip-rap, or fencing to eliminate damage caused by livestock.

Fish culture plays a major role in accelerating the recovery of severely depleted wild stocks and in sustaining major sport fisheries. Selected steelhead stocks are reared to fry or smolt size in provincial, federal, and public involvement hatcheries. Fry are released in underseeded areas of streams or above barriers (i.e. waterfalls), thus, maximizing the use of available rearing habitat. Smolts are reared at hatcheries or in floating net pens in lakes where they are fed artificially for one year until a size of about 18 centimetres is reached. Upon release to the river, the smolts migrate to sea returning to spawn in 2 or 3 years. Returning hatchery adults are recognized by a missing adipose fin. Steelhead releases, in 1985, consisted of 1.8 million fry and 850,000 smolts to 53 streams in the province (Appendix 1). Plans have been implemented to incubate and rear Skeena steelhead in northern S.E.P. hatchery facilities and eliminate the need to culture these fish at the distant Fraser Valley Trout Hatchery. The first hatchery adult returns of Kitimat River steelhead produced at Kitimat Hatchery are expected in 1986. As of 1985, Skeena steelhead are also being reared at Toboggan Creek, Kispiox and Deep Creek hatcheries. Thompson area steelhead are now being raised, on contract, at Spius Creek Hatchery rather than Loon Creek Hatchery to allow more room for the culture of inland trout stocks. The success of the steelhead stocking program is reflected in substantial hatchery adult returns to many rivers in the last few years.

Although there are planned exceptions, Recreational Fisheries Branch policy directs that hatchery reared steelhead be returned to their stream of parental origin and that, whenever possible, eggs are taken from wild fish rather than marked hatchery fish. Exceptions may be found in streams classified as "hatchery" (see below).

Concern about the impact of hatchery fish introductions on wild fish populations resulted in the development of a system of stream classification, based on expected genetic risk, to guide in the management of fish stocks. Three broad classes were developed:

1. "Wild" streams are managed to protect, maintain and enhance natural fish populations. Appropriate enhancement techniques include fry plants and short-term smolt plants using native brood stock, stream improvement to increase stream carrying capacity, and regulations to control the harvest.

2. "Hatchery" streams have severely depleted wild stocks and may also have damaged spawning and rearing habitat, but there is potential for angling through the annual introduction of smolts.

3. "Augmented" streams are managed to maintain healthy wild stocks while providing for a harvestable surplus through the addition of cultured fish. The risk of genetic mixing between wild and hatchery fish is minimized by using only native wild adults for brood stock. Smolts are released in the lower stream reaches where angling pressure is greatest. Returning hatchery adults are available for anglers to harvest while release regulations for wild fish ensure an upriver escapement. Stream improvement and fry stocking may also be used as a method of enhancement in augmented streams.

Sportfishing regulations are one of the most effective management strategies employed by fisheries biologists to protect and enhance steelhead stocks. Catch and release restrictions are used to protect wild stocks from harvest while still allowing anglers to enjoy the angling experience. Complete fishing closures are limited to specific areas where fish are in critical need of protection. Severe reductions in daily and annual steelhead catch limits, combined with favorable environmental conditions, have resulted in some river systems reaching or exceeding historical levels of abundance of steelhead in recent years.

Most of the anglers that fish for steelhead in the province are British Columbian's but many also come from other parts of Canada, the United States and around the world. Over the last 20 years, since the beginning of the questionnaire survey, the catch has ranged between 40,000 and 150,000 steelhead annually. This report details the results of the 1985-86 Steelhead Harvest Questionnaire, as well as presenting a comparative summary of previous years' data. The resident area boundaries used in this analysis correspond with the eight regional management boundaries. Reported catch and angling effort for the Skeena region, however, has been separated into Queen Charlotte Islands and Skeena Mainland to be consistent with previous years.

Included is a review of the 1986 juvenile stock monitoring program conducted by the Fisheries Improvement Unit, Recreational Fisheries Branch. Monitoring of juvenile steelhead abundance in various index streams throughout the province helps fisheries managers predict adult returns and determine required spawning escapements.

METHOD

Information for the Steelhead Harvest Analysis was obtained from a postcard questionnaire survey of a sample of anglers who purchased steelhead licences in British Columbia. The questionnaire asked for the following information:

1. Did you fish for steelhead between April 1, 1985, and March 31, 1986, and

2. List the streams fished and, for each, the number of days fished, the number of wild steelhead kept and released, and the number of hatchery steelhead kept and released.

A total of ten resident groups were recognized: residents of eight regions of the province, residents of the other provinces and territories, and residents from outside of Canada (Fig. 1). Questionnaires were mailed to 59% of B.C. resident anglers and 95% of non-B.C. resident anglers for a combined sample size of 63% of all steelhead licencees. Nonresidents made up about 12% of licencees and were sampled at a higher rate to ensure a statistically adequate response. The returned questionnaires were analysed to determine wild and hatchery steelhead catch, angling effort and angler distribution for all streams fished.

RESULTS

During the 1985-86 fishing season, 25,619 steelhead angling licences were sold. Lower Mainland residents made up the largest segment (38%) of steelhead licencees. About 7% of the questionnaires mailed were either returned by the post office as undeliverable or were spoiled and unuseable. Disregarding the unuseable questionnaires, the response rate was 57%. The resulting sample group constituted 33% of all licenced steelheaders (Appendix 2).

Of the respondents, 77% actually fished for steelhead and, of these, 59% reported catching at least one fish. When extrapolated to include all anglers, an estimated 11,148 of 19,397 active anglers were successful in catching a steelhead (Appendix 3).

Steelhead anglers living in coastal drainage areas of B.C. where steelhead occur tended to fish in their home region. Of 6,308 angler units generated by Vancouver Island residents, 5,843 (93%) were spent fishing Vancouver Island streams. Similarly, Lower Mainland resident anglers spent most of their time fishing local streams (9,350 of 12,799 angler units). Angler units are one method of measuring angling activity and, in the Steelhead Analysis, were determined by counting all the anglers who fished each stream throughout the year. Of course, many anglers fish more than one stream generating an additional angler unit for each stream fished. Consequently, the total angler units are greater than the total number of anglers. Many Lower Mainland steelheaders also went to Vancouver Island and the Thompson River to fish. In fact, on the Thompson River, 44% of the angler units were from Lower Mainland residents. The Dean River attracted a majority of anglers from other resident areas, particularly from outside of Canada. Just less than half of the anglers fishing in the Skeena Mainland area were also from outside of the region (Table 1).

Fig. 1. British Columbia resident areas.

The total number of days spent fishing on a river (angler days) is another method of measuring angling activity. The distribution of angler days in each region was similar to the activity measured in angler units with the Thompson, Cariboo and Skeena areas receiving a large proportion of fishing effort from visiting anglers (Table 2).

The total estimated provincial catch was 145,344 steelhead with Vancouver Island providing the largest catch of hatchery and wild fish combined. Almost half of Vancouver Island's catch was hatchery fish. The Skeena Mainland area, which has very few hatchery fish, was third in total catch but reported the most wild fish caught in any region. Fishing effort was highest in the Lower Mainland region, followed by the Skeena Mainland. The provincial catch per angler day averaged 0.68. Anglers kept an average of 13% of the provincial steelhead catch, ranging from a low of 10% on Vancouver Island and the Cariboo to a high of 33% in the Thompson-Nicola area. Hatchery fish comprised approximately 27% of the total provincial catch. The release ratio for hatchery fish averaged 78% compared to 90% for wild fish (Table 3; Appendices 4 & 5).

The most heavily fished stream in the province was the Chilliwack/Vedder which supported 38,228 angler days and had the highest reported total catch (kept and released) of 17,159 fish. This total catch was followed by the Stamp/Somass (16,316), Dean (8,868), Campbell/Quinsam (8,202), and Skeena (6,165) rivers (Table 4).

Hatchery fish made up a sizeable component of the catch on numerous Vancouver Island and Lower Mainland streams (Appendix 5):

Vancouver Island:

Quatse	(88%)
Stamp/Somass	(74%)
Keogh	(69%)
Big Qualicum	(65%)
Little Qualicum	(64%)
Campbell/Quinsam	(56%)
Englishman	(50%)
Puntledge	(31%)
Oyster	(30%)
Nanaimo	(23%)
Cowichan	(17%)

Lower Mainland:

Little Campbell	(67%)
Chehalis	(67%)
Alouette	(49%)
Seymour	(43%)
Coquihalla	(41%)
Chilliwack/Vedder	(35%)
Capilano	(34%)

Of the active anglers, 7,226 (37%) kept from one to five fish, and 644 (3%) took home more than five fish. An estimated 40 anglers kept more than their legal limit of ten steelhead (Appendix 6). Approximately 46% of all active anglers spent between one and five days fishing. The majority of anglers living in areas with a large number of steelhead streams (Vancouver Island, Lower Mainland and Skeena) spent over five days angling for steelhead. This was also true of anglers from outside of Canada. Steelhead anglers living in areas where there are few or no steelhead streams generally fished for only one to five days (Appendix 7).

Table 1. 1985-86 Distribution of steelhead "angler units" in each region containing steelhead.

Resident Area	Angler units in Regions containing steelhead						Total Angler Units
	Van. Is	L. Main	Thompson	Cariboo	Skeena	QCI	
Vancouver Is.	5,843	99	95	20	186	13	6,308
L. Mainland	1,425	9,350	1,238	152	432	55	12,799
Thompson-Nicola	14	115	693	76	114	2	1,028
Kootenays	12	31	25	25	74	0	172
Cariboo	24	39	55	672	205	9	1,007
Skeena & QCI	15	45	17	24	4,914	579	5,633
Omineca-Peace	15	21	56	130	1,200	12	1,452
Okanagan	27	77	283	68	77	2	539
Nonres. Canadian	159	63	59	83	755	11	1,162
Non-Canadian	186	47	262	457	1,202	8	2,208
Total Angler Units	7,720	9,887	2,783	1,707	9,159	691	32,308

Table 2. 1985-86 Distribution of steelhead "angler days" in each region containing steelhead.

Resident Area	Angler days in Regions containing steelhead						Total Angler Days *
	Van. Is	L. Main	Thompson	Cariboo	Skeena	QCI	
Vancouver Is.	41,298	277	324	94	940	48	43,166
L. Mainland	4,490	83,206	5,335	834	1,746	132	96,587
Thompson-Nicola	148	374	4,864	487	808	2	6,827
Kootenays	27	98	76	155	448	0	821
Cariboo	54	124	225	4,046	1,278	37	5,779
Skeena & QCI	58	157	49	84	36,272	3,423	40,301
Omineca-Peace	61	80	193	441	4,105	24	4,990
Okanagan	120	358	1,382	446	358	13	2,699
Nonres. Canadian	777	279	219	349	3,667	30	5,447
Non-Canadian	505	204	1,638	2,521	7,550	125	12,965
Total Angler Days	47,538	85,157	14,305	9,457	57,172	3,834	219,582

* Totals differ from the area and provincial totals in Appendices 4 and 5 due to the level of precision of calculations (data on file).

Table 3. 1985-86 Angling effort and steelhead catch distribution.

Area	Angler days**	Wild ** Kept	Wild ** Released	Hatchery ** Kept	Hatchery ** Released	Total catch	Kept/ day *	Catch/ day *
Vancouver Island	46,918	611	25,984	4,484	20,727	51,806	0.103	1.096
Lower Mainland	83,544	869	21,291	3,754	8,831	34,745	0.055	0.415
Thompson-Nicola	14,239	1,871	3,859	117	177	6,024	0.140	0.433
Cariboo	9,354	1,213	10,807	21	118	12,159	0.130	1.434
Skeena - Mainland	56,352	5,658	27,952	59	377	34,046	0.099	0.627
- Q.C.I.	3,825	705	5,682	0	6	6,395	0.182	1.651
Unknown streams	1,418	56	54	8	16	139	0.052	0.112
Total	215,650	10,983	95,666	8,443	30,252	145,344	0.089	0.681

* From Appendix 4 (calculated from reported days fished and fish caught).
** From Appendix 5.

Table 4. Steelhead streams having the highest total catch in 1985-86.

Streams	Angler days**	Wild ** Kept	Wild ** Released	Hatchery ** Kept	Hatchery ** Released	Total catch	Kept/ day *	Catch/ day *
VANCOUVER ISLAND								
Stamp/Somass	12,765	161	4,006	2,120	10,029	16,316	0.179	1.278
Campbell/Quinsam	7,449	328	3,229	534	3,929	8,020	0.116	1.077
Gold	2,425	0	5,556	50	148	5,754	0.021	2.344
Cowichan	5,746	25	4,211	232	609	5,077	0.044	0.891
Little Qualicum	2,933	0	961	484	1,190	2,635	0.164	0.910
LOWER MAINLAND								
Chilliwack/Vedder	38,228	186	11,047	2,137	3,789	17,159	0.061	0.448
Alouette (South)	8,727	13	2,761	607	2,038	5,419	0.071	0.621
Chehalis	2,826	3	706	276	1,169	2,154	0.099	0.763
Cheakamus	1,450	0	1,849	23	42	1,914	0.015	1.329
Little Campbell	3,940	0	501	253	787	1,541	0.064	0.389
Seymour	3,086	0	771	151	424	1,346	0.049	0.436
THOMPSON-NICOLA								
Thompson	14,073	1,868	3,830	117	177	5,991	0.141	0.435
CARIBOO								
Dean	4,573	537	8,223	21	87	8,868	0.117	2.024
Atnarko/Bella Coola	3,947	537	1,758	0	31	2,326	0.136	0.589
SKEENA MAINLAND								
Skeena	15,061	1,880	4,163	34	88	6,165	0.131	0.412
Bulkley	10,323	942	4,407	7	35	5,391	0.088	0.536
Babine	2,478	129	3,516	5	93	3,744	0.046	1.499
Zymoetz (Copper)	3,890	408	2,626	4	36	3,074	0.101	0.800
Morice	4,269	346	1,933	0	41	2,320	0.079	0.600
Kitsumkalum	4,399	431	1,971	0	11	2,413	0.100	0.552
QUEEN CHARLOTTE ISLANDS								
Yakoun	2,146	431	3,889	0	6	4,326	0.196	1.986
Mamin	339	72	357	0	0	429	0.227	1.258
Tlell	294	75	247	0	0	322	0.250	1.095

* From Appendix 4 (calculated from reported days fished and fish caught).
** From Appendix 5.

DISCUSSION

TRENDS IN CATCH AND ANGLING EFFORT

The sale of steelhead licences has declined since its introduction twenty years ago. Initially, the licence fee was 25 cents for B.C. residents and $5.00 for nonresidents. The number of steelhead licences issued at that time averaged about 40,000. When resident fees were raised to $2.00, in 1971, licence sales dropped abruptly to near 30,000. Licence sales continued to decline gradually throughout the 1970's and early 1980's to a low of 20,600. This can be attributed to further increases in fees combined with decreases in steelhead stocks on some systems and the introduction of catch and release regulations. The 1985-86 season, however, reported an increase in licence sales and active anglers similar to numbers ten years ago (Fig. 2; Appendix 8).

There has been a substantial increase in the steelhead catch over the last three years as well as greater catch success (catch per angler day). During the years when licence sales and the number of active anglers were decreasing, the number of successful anglers remained fairly constant. This would indicate that the least successful anglers probably dropped out leaving the streams available to a group of more experienced fishermen. Inthe last two years, however, with so many more steelhead caught, the number of successful anglers has increased noticeably. About 60% of active steelhead fishermen caught a fish this season, whereas the long-time average was nearer 45% (Fig. 2; Appendix 8).

The provincial steelhead catch this year resulted in an average catch (kept and released) of 13 fish per successful angler. Catch per angler day was 0.68, down slightly from the previous years record high of 0.73. Each angler devoted an average of 11 angler days to steelhead fishing (Appendix 8).

The dramatic increase in steelhead catch over the last few years can be attributed to an increase in stock abundance in many streams resulting from a combination of factors: (1) an improvement in wild juvenile recruitment, (2) supplemental stocking with hatchery fry and smolts, (3) reduced harvest quotas, and (4) catch and release restrictions. The increase in total catch is also inflated by the fact that many released fish are caught more than once. Just how many times a released fish is recaptured is unknown, but it is evident on some rivers that the total catch by anglers exceeds the estimated run size. This year, only one in ten wild steelhead were harvested by anglers compared to two in ten for hatchery fish. Prior to catch and release, more than half of the steelhead catch was kept (Fig. 3; Appendix 9).

Provincial angling effort has been increasing steadily since the all-time low which occurred in 1981-82 (Fig. 3). Catch per angler day, which is a reflection of angling success, remained favourably high in all regions. There was a decline in angling effort on Vancouver Island, likely due to "freeze-ups" in December, 1985, and January, 1986 (Fig. 4). The catch on Vancouver Island was also reduced slightly over the previous season. Many more hatchery fish were evident (influenced particulary by the Stamp/Somass) but fewer wild fish were caught. The Lower Mainland catch, although still

high, also dropped over last year due to fewer wild fish. Catch in the Skeena Mainland has been rising steadily for three years and was particularly high this season with a larger component of the fish caught being released. The Cariboo area also reported an increase in catch over the previous year (Fig. 5; Appendix 5).

RESPONSE BIAS

Steelhead biologists in Oregon and Washington conducting mailout questionnaire surveys of steelhead angling success have found a "positive response bias" in their results. In British Columbia, comparative results of the Steelhead Harvest Questionnaire with on-site creel surveys suggests a similar bias trend. The questionnaire may be producing inflated estimates of the steelhead catch (both kept and released). For those streams receiving over 400 angler days per year (the larger, more popular streams), the kill estimates from the questionnaire averaged 32% higher than kill estimates obtained from on-site creel surveys. The range in error was considerable (from 4% to 63%) indicating that the 32% overestimate should be applied selectively (Steelhead Harvest Analysis 1978-79, Fish and Wildlife Bulletin No. B-8). Creel survey results also indicate that estimates of fish released and angler days are even more inflated than estimates of steelhead kept.

Few anglers maintain a permanent record of fish released or the number of days spent fishing, so guesswork is often the only answer. More rivers in recent years have been stocked with hatchery fish and are exhibiting strong returns. Some anglers who are fishing these rivers regularly--some almost daily--record the number of steelhead kept but do not remember the number of days fished or the number of wild and hatchery fish released. The last couple of years, a few questionnaires have been returned incomplete rendering them almost useless. Eliminating these anglers from the sample would considerably alter the catch and effort estimates for the rivers fished. So far, it has been possible to contact these anglers by telephone to clarify the information provided on the questionnaire and fill in the blanks. As long as anglers have continued success catching (and releasing) such large numbers of fish, this problem will continue. Of course, there is also the likelihood of some dishonest responses.

The comparison of creel survey and questionnaire results are not always reliable. Creel survey techniques have varied from intense sampling (Dean and Thompson rivers) and random interviews (Campbell and Quinsam rivers) to voluntary angler reports (Keogh and Chilcotin rivers). The results range from accurate to indicative, reflecting considerable differences when compared to the questionnaire survey.

Throughout the years, the results of the Steelhead Harvest Analysis have been derived from a 50% response rate to a single mailout of the questionnaire. It has generally been assumed that the keenest, most active, and most successful anglers are the ones most likely to complete the questionnaire. If this was the case, when the number of fish reported caught was extrapolated to include all anglers, the resulting estimates would be inflated or positively biased due to the poor representation of inactive or dissatisfied anglers.

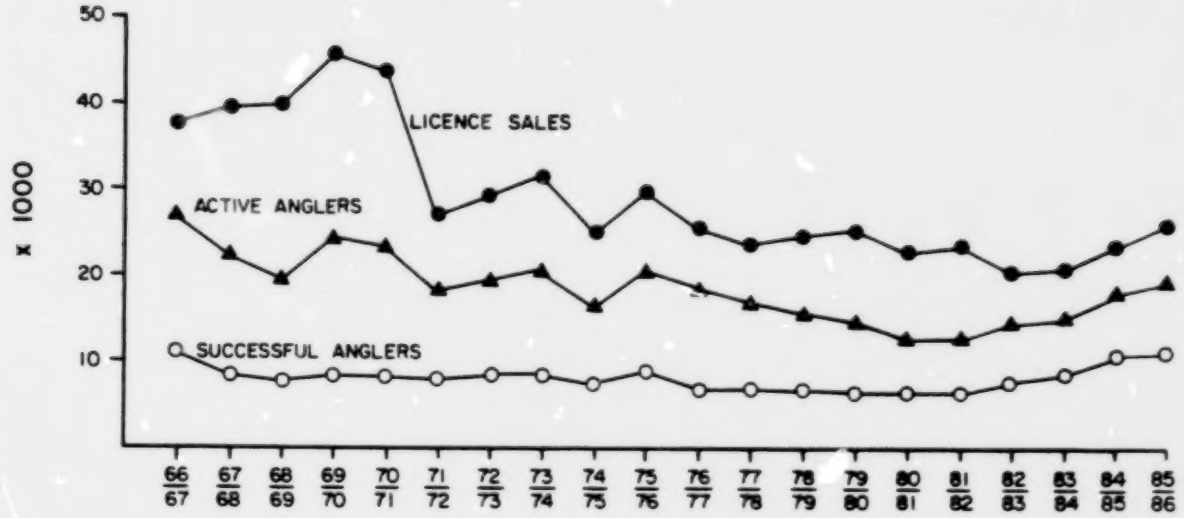

Fig. 2. Annual variations in steelhead licence sales and the number of active and successful steelhead anglers in British Columbia since 1966/67.

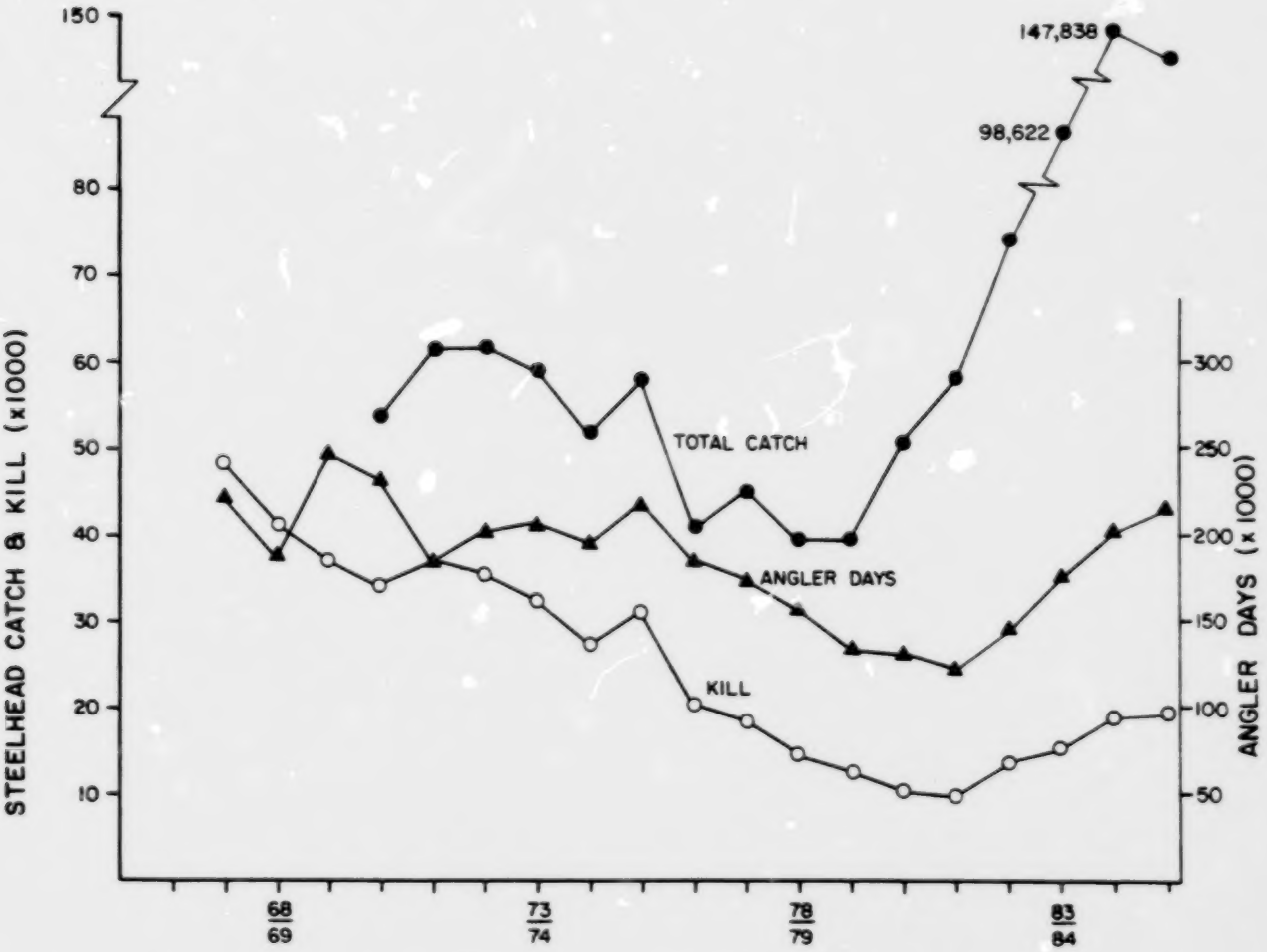

Fig. 3. Steelhead angling effort and catch success since 1967/68.

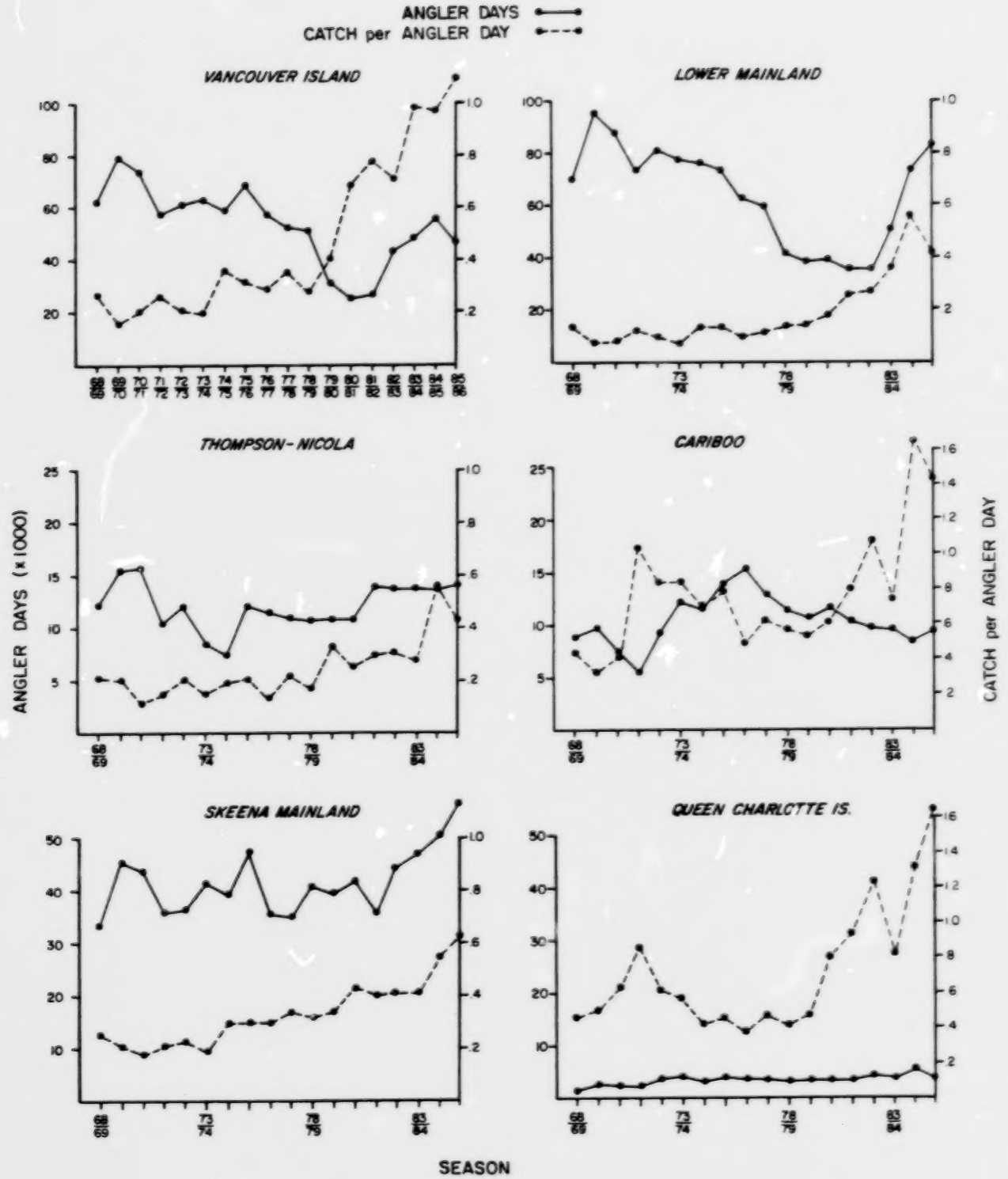

Fig. 4. Trends in steelhead angling effort and catch success for each area containing steelhead streams.

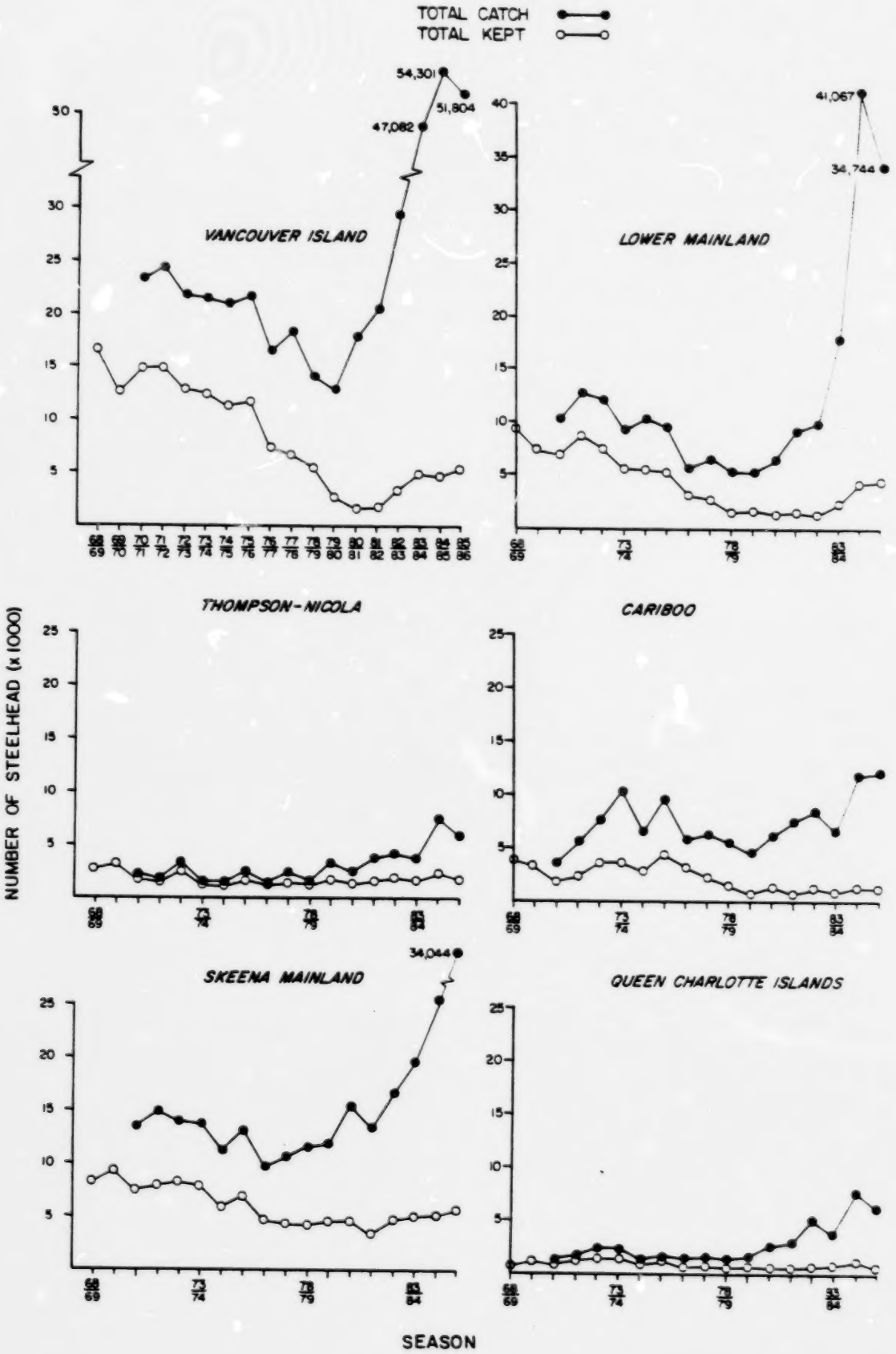

Fig. 5. Trends in total steelhead catch and kept for each area containing steelhead streams.

In 1978-79, and again in 1982-83, a second mailing of the questionnaire was undertaken to increase the response rate and, thus, attempt to arrive at a more accurate estimate of angling activity and success. When the results of both mailings were combined, the decrease in estimates of active anglers, successful anglers, angler days and total catch supported the possibility of response bias. If the majority of the remaining nonrespondents were found to be inactive or unsuccessful, as generally assumed, the estimates of active and successful anglers from the first mailing would be reduced considerably more. The results of a follow-up telephone survey in 1982-83 of a small random sample of Vancouver Island resident anglers who did not respond to either mailing, however, did not support the theory of response bias. Further effort is necessary if a reasonable estimate of response bias is to be determined, either through multiple mailings of the questionnaire or a telephone survey on a much broader scale. In the meantime, the analysis results present a useful indication of increasing and decreasing trends in stock status and angling activity. Its usefulness to fisheries managers is strongly recognized in British Columbia.

JUVENILE STOCK MONITORING IN BRITISH COLUMBIA (SUMMER-FALL 1986)

It is the position of the Ministry of Environment and Park's Recreational Fisheries Branch to provide high quality recreational angling. This means managing fish stocks to guarantee that there will always be enough fish for anglers to catch. Wild steelhead management centres on ensuring that enough adult fish escape the commercial, Indian and sport fisheries and return to spawn so that their progeny will provide good angling in the future.

Juvenile stock monitoring is used by fisheries biologists to determine the number of offspring resulting from spawning. Steelhead juveniles remain in their home stream from two to four years before going to the ocean. This allows fisheries biologists to sample and estimate the number of juvenile steelhead in various streams and, thus, predict how many will survive to adults. Depending on these predictions, regulations are instituted and, in some cases where stocks are particularly low, hatchery fish are stocked.

Streams where juvenile steelhead stocks are monitored are called index streams. Nearby streams are generally assumed to have similar densities of young steelhead and are, therefore, managed in a comparable fashion.

Monitoring juvenile stocks in streams also tells fisheries biologists if their management strategies are working. If there are fewer juvenile steelhead than the stream is capable of supporting, then more can be done either through harvest regulations, habitat improvement or fish stocking.

This section provides a review of steelhead juvenile stock monitoring conducted, in 1986, on various index streams throughout the province.

Vancouver Island

Only one stream, the Keogh River, was censused in 1986. Adult fish passing through a counting fence across the river showed the 1985-86 spawning run to be exceptionally large at 4,000 fish. Hatchery fish made up a sizeable part of the run (almost 75%) which was not typical of other North

Island streams. Juvenile monitoring showed an unusually large number of fry indicating that all useable stream habitat was saturated. There were also above average smolt counts in the spring of 1985 and 1986 which suggests that there will be better than average adult returns in the 1987-88 fishing season.

Lower Mainland

The Chilliwack/Vedder River is the single most important stream in the province for steelhead catch and angling effort. Although marginally lower than in recent years, high numbers of fry and parr were found along the entire length of the mainstem river, in 1986. This reduction in fry abundance compares with a similar reduction in the total steelhead catch (17,163 adults in 1985-86 versus 26,590 in 1984-85). Excellent growth of the fry, however, suggests their optimum survival.

Silverhope Creek had its largest ever recorded run of summer steelhead in 1985, with an estimated 450 fish spawning in 1986. Juvenile stock monitoring showed very high densities of fry above Silver Lake, suggesting that there was an adequate number of spawning adults. Parr densities were also high due to large fry populations the previous year. The growth of juveniles was judged to be good, which would not be the case if the system was overseeded.

Recently reduced industrial activity in the Coquihalla drainage has allowed better growth and survival of juvenile steelhead. Construction of the new Coquihalla highway meant an anticipated decline in the wild steelhead population, the result of sandy materials being washed into and deposited in the river covering spawning habitat. To compensate for the destruction of fish habitat, large numbers of hatchery fry and parr were released in the Coquihalla, and juvenile densities monitored in 1986 were near capacity. Wild fry made up only a small part of the population, consistent with the low spawning run in 1985. The 1986 adult run size, however, was a record high (600 fish of which 450 were wild). Stocking of hatchery fry and parr between 1982 and 1986 should generate maximum adult returns in 1987 and beyond. Adult returns from the first experimental release of 15,000 hatchery parr are due back as adults in the summer of 1987.

Preliminary investigations on the Chehalis, Seymour, Birkenhead and Squamish rivers suggested that these streams contained low densities of steelhead fry. Although some showed higher numbers of fry than in other years, none of these streams were operating at their full potential. There continues to be a problem with many hatchery smolts, released into the Chehalis River, remaining in the system rather than migrating to sea. Extremely low fry densities in the Birkenhead River will be partially remedied by the addition of hatchery fry in the near future.

Skeena

A preliminary look at the Cranberry River (a tributary of the Nass River) showed that fry densities varied along its length. Spawning habitat is limited in the upper reaches and the quality of rearing habitat is poor throughout. Thus, the Cranberry system was probably operating near its natural capacity. A look at steelhead sport catch over the years suggests

that this years' fry population was the result of an average steelhead run size. Catch data also indicates that the Cranberry provides approximately 40% of the total angler days and 42% of the steelhead sport catch reported for the Nass system since 1979.

The Kispiox River supported very high densities of steelhead fry in 1986, the result of a large adult escapement in 1985 and relatively stable spring streamflows. Yearling parr were very abundant as well due to a very high fry population the previous year. There should be maximum survival of these fry and parr to smolt size. The 1987 run of steelhead to the Kispiox River is expected to be better than average, as predicted from good juvenile populations sampled in 1981 and 1982. The number of fish that make it to the sport fishery, however, will depend, to a large extent, on how many steelhead are intercepted in the 1987 commercial net fishery at the mouth of the Skeena River.

The Bulkley-Morice River system was seeded to approximately 60% of its fry capacity in 1986. Fry abundance in the mainstem Bulkley River and its tributaries ranged from a low of 7% saturation in some areas to a high of only 50% saturation in others. A severe flood in mid-June is suspected to have significantly reduced the egg-to-fry survival in these areas. In the upper Bulkley, however, above its confluence with the Morice River, fry densities ranged from 40 to 100% saturation. In the Morice River and its tributaries, fry densities were suspected to be at a maximum. The number of smolts and the number of returning adults from this brood year may be slightly less than average.

Outlook

Streams which had abundant fry populations, in 1986, should have large adult returns in four to five years (starting in 1990 and 1991). Predictions of adult runs in the upcoming 1987-88 season are very limited since previous juvenile stock data was only available for a few streams (Keogh, Coquihalla, Silverhope, Thompson and Kispiox). The accuracy of forecasts depends on a number of influences such as ocean survival, interception rates in the various fisheries, as well as our accuracy in estimating juvenile abundance.

Overall, in 1987-88, better than average adult returns are expected for the Keogh and Coquihalla rivers, and average returns are expected for the Silverhope, Thompson and Kispiox rivers.

Appendix 1. 1985 Juvenile steelhead releases from Provincial (MOE), Federal (DFO), and Public Involvement (Public) fish culture facilities.

Stream	Facility	Fry Released	Smolts Released	Predicted Adult Returns*
VANCOUVER ISLAND				
Big Qualicum R.	Big Qualicum Hatchery (DFO)		24,687	987 wr
Campbell R.	O'Connor Lk. netpens (Public)		13,781	413 sr
Cowichan R.	Vancouver Island Hatchery (MOE)		52,263	2,090 wr
Cruickshank R.	Puntledge Hatchery (DFO)	67,422		539 wr
Englishman R.	Vancouver Island Hatchery (MOE)	40,482		324 wr
	Big Qualicum Hatchery (DFO)	21,576	15,282	784 wr
			9,788parr	39 wr
Iron R.	Quinsam Hatchery (DFO)	8,823		71 wr
L. Qualicum R.	Little Qualicum Hatchery (DFO)		29,298	1,172 wr
Millstone R.	Big Qualicum Hatchery (DFO)		11,997	480 wr
Nanaimo R.	Vancouver Island Hatchery (MOE)	43,910	21,933	1,228 wr
Puntledge R.	Puntledge Hatchery (DFO)	63,184	36,674	1,605 sr
Quinsam R.	Quinsam Hatchery (DFO)	8,181	21,216	914 wr
Somass R.	Robertson Cr. Hatchery (DFO)		65,145	1,954 sr
			126,959	5,078 wr
Sooke R.	Vancouver Island Hatchery (MOE)		50,055	2,002 wr
Tsitika R.	Vancouver Island Hatchery (MOE)	22,388		179 sr
LOWER MAINLAND				
Alouette L.	Fraser Valley Hatchery (MOE)	26,000		208 wr
Alouette R.	Alouette R. Corrections (MOE)		27,554	1,102 wr
Ashlu R.	Fraser Valley Hatchery (MOE)	44,000		352 wr
	Tenderfoot Hatchery (DFO)	32,560		163 wr
Big Silver Cr.	Chehalis Hatchery (DFO)		15,640	626 wr
Brunette R.	Alouette R. Corrections (MOE)		8,114	325 wr
Capilano R.	Capilano Hatchery (DFO)		14,330	429 sr
			5,823	233 wr
Center Cr.	Chilliwack Hatchery (DFO)	8,603		69 wr
Cheakamus R.	Tenderfoot Hatchery (DFO)	18,633		149 wr
Chehalis R.	Chehalis Hatchery (DFO)		59,762	2,390 wr
Chilliwack R.	Chilliwack Hatchery (DFO)	114,164	95,537	4,734 wr
Cogburn Cr.	Chehalis Hatchery (DFO)		6,183	247 wr
Coquihalla R.	Fraser Valley Hatchery (MOE)	181,823	16,900	1,962 sr
Elaho R.	Tenderfoot Hatchery (DFO)	18,026		90 wr
Highland Cr.	L. Campbell Hatchery (Public)	2,646		21 wr
Kanaka Cr.	Bell-Irving Hatchery (DFO)		4,900	196 wr
L. Campbell R.	L. Campbell Hatchery (Public)	7,939		64 wr
Nicomekl R.	Fraser Valley Hatchery (MOE)		10,694	428 wr
Serpentine R.	L. Campbell Hatchery (Public)	5,292		42 wr
Shovelnose Cr.	Fraser Valley Hatchery (MOE)	9,279		74 wr
Silverhope R.	Fraser Valley Hatchery (MOE)	28,000		224 sr
Tamahi Cr.	Chilliwack Hatchery (DFO)	67,576		541 wr
Weaver Cr.	Chehalis Hatchery (DFO)		5,183	207 wr
Yola Cr.	Fraser Valley Hatchery (MOE)	37,526		300 sr

Appendix 1. (continued)

Stream	Facility	Fry Released	Smolts Released	Predicted Adult Returns*
THOMPSON-NICOLA				
Bonaparte R.	Loon Creek Hatchery (MOE)	73,535	41,790	2,040 wr
Coldwater R.	Fraser Valley Hatchery (MOE)	172,277		1,378 wr
		98,305	(eyed eggs)	<100 wr
Deadman R.	Loon Creek Hatchery (MOE)	52,110		261 wr
Tranquille R.	Loon Creek Hatchery (MOE)	15,000		120 wr
CARIBOO				
Atnarko R.	Snootli Hatchery (DFO)	47,500		238 wr
Chilcotin R.	Hanceville Hatchery (MOE)	12,700		102 sr
L. Chilcotin R.	Hanceville Hatchery (MOE)	101,900		815 sr
Noosgulch R.	Snootli Hatchery (DFO)	15,000		75 wr
Salloomt R.	Snootli Hatchery (DFO)	55,000		275 wr
Taseko R.	Hanceville Hatchery (MOE)	5,900		47 wr
SKEENA MAINLAND				
Kitsumkalum R.	Deep Cr. Hatchery (Public)	9,010		72 wr
Kitimat R.	Kitimat Hatchery (DFO)		65,143	2,606 wr
Morice R.	Fraser Valley Hatchery (MOE)	83,363		667 sr
Suskwa R.	Fraser Valley Hatchery (MOE)	132,580		1,061 sr
Trout Cr.	Toboggan Cr. Hatchery (DFO)	54,654		437 sr
Zymoetz R.	Fraser Valley Hatchery (MOE)	73,068		585 sr
PROVINCIAL TOTAL		1,781,630 (+98,305 eyed eggs)	846,843 (+ 9,788 parr)	45,914

* Predicted adult returns based on Tautz and Slaney, 1982, Biostandards

Fry to adult survival:	fry < 1.0g	0.5%
	fry > 1.0g	0.8%
Smolt to adult survival:	summer-run (sr)	3%
	winter-run (wr)	4%

Englishman R. parr (downgrades) to adult survival: 0.4%

Eyed-egg to adult survival: 0.1% maximum

Appendix 2 - NUMBER OF STEELHEAD LICENCEES, QUESTIONNAIRES AND RESPONDENTS BY RESIDENT AREA, 1985-86

RESIDENT AREA	LICENCEES	QUESTIONNAIRES MAILED	RESPONDENTS	NOT USEABLE*	RESPONSE RATE (%)	LICENCEES SAMPLED (%)
1 VANCOUVER ISLAND	3903	2287	1104	167	52.08	28.29
2 LOWER MAINLAND	9778	5822	3043	452	56.67	31.12
3 KAMLOOPS	1082	637	373	24	60.85	34.47
4 KOOTENAYS	213	125	75	6	63.03	35.21
5 CARIBOO - CHILCOTIN	956	572	309	30	57.01	32.32
6 SKEENA	4739	2781	1325	189	51.12	27.96
7 OMINECA - PEACE	1395	811	446	59	59.31	31.97
8 OKANAGAN	597	351	214	25	65.64	35.85
9 NON - RESIDENT (CANADIAN)	1056	1000	582	58	61.78	55.11
0 NON - CANADIAN	1900	1802	1069	92	62.51	56.26
TOTAL	25619	16188	8540	1102	56.61	33.33

* Includes questionnaires that were :
1. returned by the post office as undeliverable, or
2. spoiled.

Appendix 3 - ESTIMATE OF ACTIVE AND SUCCESSFUL STEELHEAD ANGLERS BY RESIDENT AREA, 1985-86

RESIDENT AREA	LICENCEES	RESPONDENTS	REPORTED ACTIVE ANGLERS*	ACTIVE ANGLERS (%)	ESTIMATED ACTIVE ANGLERS	REPORTED SUCCESSFUL ANGLERS**	SUCCESSFUL ANGLERS (%)	ESTIMATED SUCCESSFUL
1	3,903	1,104	854	77.4%	3,021	575	67.3%	2,033
2	9,778	3,043	2,282	75.0%	7,334	1,098	48.1%	3,527
3	1,082	373	305	81.8%	885	164	53.8%	476
4	213	75	57	76.0%	162	22	38.6%	62
5	956	309	209	67.6%	646	131	62.7%	405
6	4,739	1,325	918	69.3%	3,284	568	61.9%	2,033
7	1,395	446	324	72.6%	1,013	168	51.9%	525
8	597	214	169	79.0%	472	81	47.9%	226
9	1,056	582	496	85.2%	900	283	57.1%	514
0	1,900	1,069	945	88.4%	1,680	758	80.2%	1,347
TOTAL	25,619	8,540	6,559	76.8%	19,397	3,848	58.7%	11,148

* Number of respondents who actually fished for steelhead.

** Number of respondents who actually caught steelhead (whether kept or released).

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
1	ADAM RIVER	12	36	4	10	0	0	30	94	0.000	2.500	1
2	AHNUHATI RIVER	3	5	3	5	2	3	0	0	0.667	0.667	2
3	AMOR DE COSMOS RIVER BEAR R.	13	43	10	32	0	0	15	50	0.000	1.154	3
5	ARTLISH RIVER	5	8	1	1	0	0	14	24	0.000	2.800	5
6	ASH RIVER	25	88	6	21	2	7	22	77	0.080	0.960	6
10	BIG QUALICUM RIVER QUALICUM R.	774	2551	182	605	114	360	459	1394	0.147	0.740	10
11	BLACK CREEK	14	46	6	18	0	0	3	10	0.000	0.214	11
13	BROWNS RIVER	11	38	6	21	0	0	7	24	0.000	0.636	13
14	BURMAN RIVER	8	21	2	4	0	0	13	31	0.000	1.625	14
15	CAMPBELL RIVER	1322	4236	211	637	97	317	1245	4221	0.073	1.015	15
16	CAYCUSE RIVER	4	11	4	11	0	0	2	4	0.000	0.500	16
17	CAYEGHLE CREEK	2	6	2	6	0	0	5	17	0.000	2.500	17
19	CHEMAINUS RIVER	62	211	14	46	0	0	22	77	0.000	0.355	19
20	CHINA CREEK	23	81	12	42	0	0	22	77	0.000	0.957	20
21	CLUXEWE RIVER	68	228	23	77	8	27	66	232	0.118	1.088	21
24	CONUMA RIVER	2	7	2	7	0	0	1	3	0.000	0.500	24
25	COUS CREEK	3	10	2	7	0	0	2	7	0.000	0.667	25
26	COWICHAN RIVER COTTONWOOD,SKUTZ FAL	1654	5743	199	682	73	256	1400	4818	0.044	0.891	26
30	DAVIE RIVER	2	4	2	4	0	0	1	1	0.000	0.500	30
34	ENGLISHMAN RIVER	571	1961	108	361	30	101	496	1709	0.053	0.921	34
36	EVE RIVER	19	65	8	26	0	0	29	100	0.000	1.526	36
38	FRANKLIN RIVER	3	10	2	6	0	0	2	7	0.000	0.667	38
39	FRENCH CREEK	20	70	5	17	0	0	2	7	0.000	0.100	39
41	GOLD RIVER UCONA R.	727	2422	157	497	15	48	1689	5701	0.021	2.344	41
42	GOLDSTREAM RIVER	22	77	3	10	1	3	65	229	0.045	3.000	42
44	GORDON RIVER	7	24	4	14	0	0	7	24	0.000	1.000	44
45	HARRIS CREEK	50	176	15	52	5	17	79	278	0.100	1.680	45
48	HEBER RIVER	11	22	6	12	0	0	35	80	0.000	3.182	48
56	KAKWEIKEN RIVER	4	12	1	3	0	0	1	3	0.000	0.250	56
57	KAOUK RIVER ROWLAND CR.	17	60	3	10	1	3	9	31	0.059	0.588	57
59	KEOGH RIVER	126	434	39	131	21	70	209	719	0.167	1.825	59
61	KINGCOME RIVER	8	25	1	3	0	0	8	25	0.000	1.000	61
63	KITSUCKSUS CREEK	2	7	1	3	0	0	2	7	0.000	1.000	63
64	KLANAWA RIVER	5	17	1	3	0	0	0	0	0.000	0.000	64
67	KOKISH RIVER	42	144	8	25	0	0	39	137	0.000	0.929	67
68	KOKSILAH RIVER	35	123	10	35	0	0	9	31	0.000	0.257	68
69	KOOTOWIS CREEK INDIAN R.	13	45	2	6	0	0	17	60	0.000	1.308	69
71	LEINER RIVER	7	23	4	13	0	0	0	0	0.000	0.000	71
73	LITTLE QUALICUM RIVE	860	2930	156	523	141	482	642	2148	0.164	0.910	73
79	MAHATTA RIVER	7	24	5	17	1	3	37	130	0.143	5.429	79
81	MARBLE RIVER AMAZON R.,LINK CR.	46	148	21	64	0	0	59	189	0.000	1.283	81
85	MILLSTREAM RIVER	12	42	2	7	3	10	27	95	0.250	2.500	85
86	MOHUN CREEK TROUT CR.	2	7	1	3	0	0	0	0	0.000	0.000	86
90	NAHMINT RIVER	13	43	9	29	0	0	30	102	0.000	2.308	90
91	NAHWITTI RIVER	31	106	9	29	0	0	66	227	0.000	2.129	91
92	NANAIMO RIVER	672	2345	101	347	31	108	295	1034	0.046	0.485	92

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
93	NESOOK RIVER	1	3	1	3	0	0	0	0	0.000	0.000	93
94	NIMPKISH RIVER	182	631	43	145	0	0	200	700	0.000	1.099	94
95	NITINAT RIVER LITTLE NITINAT R.	6	20	3	10	0	0	4	14	0.000	0.667	95
97	OYSTER RIVER	483	1622	94	302	11	29	185	608	0.023	0.406	97
98	PACHENA RIVER	4	14	1	3	0	0	7	24	0.000	1.750	98
100	PERRY RIVER	3	10	2	7	0	0	0	0	0.000	0.000	100
101	PUNTLEDGE RIVER COURTENAY R.	344	1207	48	163	31	109	169	596	0.090	0.581	101
102	QUATSE RIVER	219	757	37	126	35	119	375	1307	0.160	1.872	102
103	QUINSAM RIVER	898	3086	133	435	71	242	700	2434	0.079	0.859	103
104	ROBERTSON RIVER	13	45	2	7	2	7	8	28	0.154	0.769	104
107	SALMON RIVER BIGTREE CR.	80	259	34	103	1	3	56	172	0.013	0.713	107
109	SAN JUAN RIVER CLAPP,FLEET,GRANITE,	39	137	17	60	2	7	88	310	0.051	2.308	109
112	SARITA RIVER	22	77	11	38	3	10	38	134	0.136	1.864	112
115	SOMASS RIVER CHERRY CR.	905	3107	107	358	227	737	1181	3999	0.251	1.556	115
117	SOOKE RIVER	13	44	7	24	1	3	4	14	0.077	0.385	117
118	SPROAT RIVER	162	563	27	89	29	102	288	1012	0.179	1.957	118
120	STAMP RIVER	2809	9580	364	1173	448	1520	2869	9901	0.159	1.181	120
122	SUCWOA RIVER	2	6	2	6	0	0	1	3	0.000	0.500	122
123	TAHSIS RIVER	17	60	2	7	0	0	5	17	0.000	0.294	123
125	TAYLOR RIVER	4	14	2	7	0	0	0	0	0.000	0.000	125
127	TOQUART RIVER	1	3	1	3	0	0	11	38	0.000	11.000	127
129	TRENT RIVER	25	88	8	28	0	0	4	14	0.000	0.160	129
130	TSABLE RIVER	8	28	4	14	0	0	0	0	0.000	0.000	130
132	TSOLUM RIVER	16	56	2	7	0	0	2	7	0.000	0.125	132
134	TSULQUATE RIVER	7	24	2	7	0	0	4	14	0.000	0.571	134
140	WAUKWASS CREEK	11	38	7	24	0	0	26	91	0.000	2.364	140
141	WHITE RIVER	6	19	4	13	0	0	7	23	0.000	1.167	141
144	WOSS RIVER	77	269	11	36	0	0	70	244	0.000	0.909	144
145	ZEBALLOS RIVER	37	122	7	20	10	33	25	69	0.270	0.946	145
151	CAMBELL/QUINSAM RIVE	34	120	4	14	4	14	141	497	0.118	4.265	151
153	STAMP/SOMASS	20	70	1	3	5	17	36	127	0.250	2.050	153
154	HYACINTHE BAY CREEK QUADRA ISLAND	2	7	1	3	2	7	0	0	1.000	1.000	154
	AREA TOTALS:	13789	46821	2362	7720	1427	4774	13687	46631	0.103	1.096	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Lower Mainland)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
165	ALOUETTE RIVER SOUTH ALOUETTE R.	2718	8725	268	858	193	619	1495	4798	0.071	0.621	165
167	ASHLU CREEK	18	57	9	28	0	0	16	51	0.000	0.889	167
168	BEAR RIVER	6	19	1	3	1	3	3	9	0.167	0.667	168
170	BIG SILVER CREEK	5	16	2	6	0	0	0	0	0.000	0.000	170
171	BIRKENHEAD RIVER	2	6	1	3	0	0	0	0	0.000	0.000	171
174	BRUNETTE RIVER	6	19	4	12	0	0	2	6	0.000	0.333	174
175	CAPILANO RIVER BROTHERS CR.	583	1868	85	269	20	64	154	494	0.034	0.298	175
176	CHAPMAN CREEK	21	67	3	9	1	3	3	9	0.048	0.190	176
177	CHEAKAMUS RIVER CHEEKYE R.	453	1446	115	361	7	22	595	1889	0.015	1.329	177
178	CHEHALIS RIVER STATLU CR.	880	2825	123	394	87	279	584	1874	0.099	0.763	178
179	CHILLIWACK RIVER VEDDER R.	11957	38222	1324	4200	727	2319	4635	14830	0.061	0.448	179
180	COGBURN CREEK	3	9	3	9	0	0	1	3	0.000	0.333	180
181	COQUIHALLA RIVER	197	621	66	210	7	22	141	445	0.036	0.751	181
182	COQUITLAM RIVER	260	834	43	137	3	9	94	301	0.012	0.373	182
184	DAKOTA CREEK	10	32	2	6	0	0	2	6	0.000	0.200	184
186	ELAHO CREEK	4	9	2	4	0	0	8	14	0.000	2.000	186
187	EMORY CREEK	2	6	1	3	0	0	0	0	0.000	0.000	187
188	FRASER RIVER	5330	16872	489	1531	241	754	179	562	0.045	0.079	188
190	GRAY CREEK	1	3	2	6	0	0	0	0	0.000	0.000	190
191	HARRISON RIVER	27	80	10	29	0	0	4	12	0.000	0.148	191
194	HORNET CREEK	1	3	1	3	0	0	3	9	0.000	3.000	194
196	INDIAN RIVER	3	9	3	9	1	3	1	3	0.333	0.667	196
197	KANAKA CREEK	76	244	14	44	4	12	49	157	0.053	0.697	197
199	LANG CREEK WOLFSOHN CR.	20	64	3	9	0	0	25	80	0.000	1.250	199
201	LILLOOET RIVER	6	18	4	11	0	0	2	6	0.000	0.333	201
202	LITTLE CAMPBELL RIVE	1230	3938	115	362	79	252	400	1286	0.064	0.389	202
205	LYNN CREEK	24	77	9	28	0	0	5	16	0.000	0.208	205
206	MCNAB CREEK	2	6	3	9	0	0	0	0	0.000	0.000	206
207	MAMQUAM RIVER	21	67	12	38	0	0	5	15	0.000	0.238	207
209	MATSQUI SLOUGH	13	41	2	6	0	0	1	3	0.000	0.077	209
210	MORRIS CREEK	2	6	1	3	0	0	0	0	0.000	0.000	210
211	NAHATLATCH RIVER	22	66	9	26	0	0	38	117	0.000	1.727	211
213	NICOMEKL RIVER	261	838	40	128	10	32	40	128	0.038	0.192	213
214	NICOMEN SLOUGH DEWDNEY SLOUGH	21	67	4	12	1	3	0	0	0.048	0.048	214
215	NORRISH CREEK SUICIDE CR.	20	64	7	22	0	0	3	9	0.000	0.150	215
216	NORTH ALOUETTE RIVER	174	558	15	48	2	6	32	102	0.011	0.195	216
219	PITT RIVER	56	179	6	19	0	0	60	192	0.000	1.071	219
222	RAINY RIVER	15	48	3	9	0	0	1	3	0.000	0.067	222
223	ROBERTS CREEK	19	61	3	9	1	3	5	16	0.053	0.316	223
225	SALMON RIVER	8	25	3	9	0	0	2	6	0.000	0.250	225
227	SERPENTINE RIVER	23	73	6	19	2	6	3	9	0.087	0.217	227
228	SEYMOUR RIVER	962	3082	126	400	47	150	372	1193	0.049	0.436	228
230	SILVERHOPE CREEK SILVER CR.	78	248	23	72	0	0	65	207	0.000	0.833	230
234	SPUZZUM CREEK	1	3	1	3	0	0	0	0	0.000	0.000	234
235	SQUAMISH RIVER	412	1313	125	394	2	4	320	1019	0.005	0.782	235

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Lower Mainland)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
236	SIAVE RIVER	39	121	10	29	1	1	25	80	0.026	0.667	236
238	SUMAS RIVER	119	382	13	41	11	35	19	61	0.092	0.252	238
243	TZOONIE RIVER	1	3	1	3	0	0	0	0	0.000	0.000	243
244	VANCOUVER RIVER	11	35	1	3	0	0	0	0	0.000	0.000	244
246	WEAVER CREEK	9	28	8	25	2	6	14	44	0.222	1.778	246
247	WEST CREEK	14	44	1	3	0	0	1	3	0.000	0.071	247
248	WHONOCK CREEK	10	32	1	3	0	0	5	16	0.000	0.500	248
249	WIDGEON CREEK	1	3	1	3	0	0	0	0	0.000	0.000	249
250	WILSON CREEK	3	5	1	1	0	0	0	0	0.000	0.000	250
251	RUBY CREEK	1	3	1	3	0	0	0	0	0.000	0.000	251
252	GIFFORD CRK	1	3	1	3	0	0	1	3	0.000	1.000	252
	AREA TOTALS:	26162	83493	3132	9887	1450	4607	9413	30086	0.055	0.415	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Kamloops)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
272	BRIDGE RIVER	5	14	1	2	0	0	0	0	0.000	0.000	272
273	CAYOOSH RIVER	33	95	3	8	0	0	10	28	0.000	0.303	273
275	NICOLA RIVER	9	25	3	8	1	2	0	0	0.111	0.111	275
276	SETON RIVER	9	26	2	5	0	0	0	0	0.000	0.000	276
277	STEIN RIVER	1	3	1	3	0	0	0	0	0.000	0.000	277
278	THOMPSON RIVER	5068	14066	976	2757	715	1980	1492	4002	0.141	0.435	278
	AREA TOTALS:	5125	14229	986	2783	716	1982	1502	4030	0.140	0.433	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Cariboo-Chilcotin)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
280	ASSEEK R.	8	24	1	3	0	0	0	0	0.000	0.000	280
300	AINARKO RIVER	361	1040	73	203	43	128	103	279	0.119	0.406	300
301	BELLA COOLA RIVER SNOOTLI CR.	1040	2899	179	489	145	403	592	1505	0.139	0.709	301
303	CHILCOTIN RIVER ALEXIS CR.,CHILANKO R	159	447	52	147	15	41	131	362	0.094	0.918	303
304	CHILKO RIVER	14	32	8	19	1	1	0	0	0.071	0.071	304
305	CHUCKWALLA RIVER	96	172	28	50	38	68	186	329	0.396	2.333	305
306	CLYAK RIVER	5	15	1	3	0	0	1	3	0.000	0.200	306
307	DEAN RIVER	1975	4566	332	761	231	555	3766	8305	0.117	2.024	307
308	KILBELLA RIVER	28	60	11	21	8	14	38	69	0.286	1.643	308
312	MACHMELL RIVER	1	1	1	1	0	0	2	3	0.000	2.000	312
313	NEKITE RIVER	7	16	2	4	1	3	12	26	0.143	1.857	313
314	NOFICK RIVER	10	30	1	3	0	0	3	9	0.000	0.300	314
3	TALEOMEY RIVER	8	24	1	3	2	6	6	18	0.250	1.000	320
	AREA TOTALS:	3712	9326	690	1707	484	1219	4840	10908	0.130	1.434	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Skeena)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
325	BABINE RIVER	1156	2475	197	433	53	131	1622	3606	0.046	1.449	325
327	BELL IRVING RIVER	1	1	1	1	0	0	2	3	0.000	2.000	327
328	BISH CREEK	1	3	1	3	0	0	1	3	0.000	1.000	328
329	BULKLEY RIVER BOULDER,CHICKEN,TOBO	3492	10319	544	1521	308	946	1563	4438	0.088	0.536	329
330	BULKLEY/MORICE RIVER	118	313	12	31	8	25	98	225	0.068	0.898	330
331	CANOONA RIVER INDIAN R.	8	28	3	10	0	0	2	7	0.000	0.250	331
332	CEDAR CREEK	6	18	2	4	0	0	2	7	0.000	0.333	332
333	CLORE RIVER	58	195	15	46	8	28	59	180	0.138	1.155	333
334	CRANBERRY RIVER	392	1175	125	378	74	223	329	1035	0.189	1.028	334
335	DALA RIVER	10	35	4	14	1	3	35	124	0.100	3.600	335
336	DAMDOCHAX CREEK BLACKWATER R.	32	59	7	13	1	1	87	154	0.031	2.750	336
337	ECSTALL RIVER FALLS R.	2	7	1	3	1	3	3	10	0.500	2.000	337
339	EXCHAMSIKS RIVER	4	12	2	6	0	0	0	0	0.000	0.000	339
342	GITNADOIX RIVER	17	58	5	17	1	3	7	24	0.059	0.471	342
343	ILLIANCE RIVER	2	6	1	3	0	0	0	0	0.000	0.000	343
344	INKLIN RIVER	1	1	1	1	1	1	0	0	1.000	1.000	344
345	ISHKEENICKH RIVER	92	322	21	71	12	41	102	361	0.130	1.239	345
348	KEMANO RIVER	15	53	1	3	7	24	3	10	0.467	0.667	348
350	KHYEX RIVER	2	7	1	3	0	0	0	0	0.000	0.000	350
351	KILDALA RIVER	2	7	1	3	0	0	0	0	0.000	0.000	351
354	KISPIOX RIVER SWEETIN R.	1136	2690	216	537	53	140	827	1908	0.047	0.775	354
355	KITEEN RIVER	50	163	27	86	10	30	29	89	0.200	0.780	355
356	KITIMAT RIVER HIRSCH,LITTLE WEDEEN	1269	4317	151	490	104	367	305	1042	0.082	0.322	356
358	KITSEQUECLA RIVER	14	48	5	16	1	3	13	46	0.071	1.000	358
359	KITSAULT RIVER	4	12	1	3	0	0	0	0	0.000	0.000	359
360	KITSUMKALUM RIVER BEAVER R.,KALUM R.	1269	4395	199	664	127	430	574	1979	0.100	0.552	360
362	KITWANGA RIVER	19	61	9	25	4	14	62	219	0.211	3.474	362
364	KLOIYA RIVER	161	557	17	55	9	29	164	580	0.056	1.075	364
365	KLUATANTAN RIVER	17	30	3	5	0	0	28	49	0.000	1.647	365
368	KWINAGEESE RIVER	1	3	1	3	0	0	0	0	0.000	0.000	368
369	KWINAMASS RIVER	26	78	10	29	2	6	22	64	0.077	0.923	369
370	LACHMACH RIVER	1	1	1	1	0	0	0	0	0.000	0.000	370
371	LAKELSE RIVER COLDWATER,WILLIAMS C	931	2991	167	514	57	192	384	1333	0.061	0.474	371
372	MEZIADIN RIVER	44	151	15	50	6	21	9	32	0.136	0.341	372
373	MORICE RIVER	1412	4264	271	786	112	342	735	1971	0.079	0.600	373
374	MUSSEL RIVER	3	9	1	3	0	0	0	0	0.000	0.000	374
375	NAHLIN RIVER	20	60	3	7	0	0	7	12	0.000	0.350	375
376	NAKINA RIVER	54	129	12	28	6	18	66	184	0.111	1.333	376
378	NASS RIVER	156	425	43	115	15	42	153	348	0.096	1.077	378
379	NILKITKWA RIVER	2	4	2	4	0	0	0	0	0.000	0.000	379
382	SHEGUNIA RIVER	1	3	1	3	0	0	0	0	0.000	0.000	382
385	SKEENA RIVER BOULDER,FIDDLER,KWIN	5288	15055	724	2010	695	1909	1485	4247	0.131	0.412	385
386	STIKINE RIVER	15	34	7	17	3	9	0	0	0.200	0.200	386
387	SUSKWA RIVER BEAR R.	74	215	29	74	0	0	117	354	0.000	1.581	387

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Skeena)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
388	SUSIUT RIVER BEAR R.	297	621	62	145	27	58	209	456	0.091	0.795	388
390	TAHLTAN RIVER	57	170	15	45	36	110	53	151	0.632	1.561	390
391	TAKU RIVER	13	22	6	10	4	6	14	24	0.308	1.385	391
392	TATSAMENIE RIVER TATSATUA R.	6	10	1	1	2	3	0	0	0.333	0.333	392
394	TELKWA RIVER	29	85	14	42	1	3	13	30	0.034	0.483	394
395	TSEAX RIVER	163	482	58	170	23	74	83	268	0.141	0.650	395
399	ZYMAGOTITZ RIVER ZIMACOR R.	53	183	9	27	3	10	16	53	0.057	0.358	399
400	ZYMOETZ RIVER COPPER R.	1267	3883	217	630	128	408	886	2659	0.101	0.800	400
	AREA TOTALS:	19263	56245	3242	9159	1903	5653	10169	28285	0.099	0.627	

Appendix 4 ANGLER DAYS AND CATCH SUCCESS, 1985-86 (Queen Charlotte Islands)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
429	COPPER CREEK	91	315	21	69	12	40	65	228	0.132	0.846	429
430	DATLAMEN CREEK	2	7	1	3	0	0	1	3	0.000	0.500	430
431	DAVIDSON CREEK	15	26	1	1	1	1	4	7	0.067	0.333	431
432	DEENA CREEK	69	243	14	48	4	13	82	288	0.058	1.246	432
434	HIELLEN RIVER	14	49	4	14	2	7	20	71	0.143	1.571	434
435	HONNA RIVER	41	145	14	49	10	35	41	145	0.244	1.244	435
436	MAMIN RIVER	97	338	20	68	22	71	100	357	0.227	1.258	436
437	MATHERS CREEK	7	23	4	13	1	3	9	30	0.143	1.429	437
438	NADEN RIVER	1	1	1	1	1	1	0	0	1.000	1.000	438
439	PALLANT CREEK MORESBY I.,MOSQUITO	39	137	12	41	4	14	52	185	0.103	1.436	439
441	SANGAN RIVER	3	10	1	3	0	0	0	0	0.000	0.000	441
442	SKEDANS CREEK	9	30	2	6	0	0	46	162	0.000	5.111	442
445	TLELL RIVER	84	292	21	70	21	74	71	245	0.250	1.095	445
446	YAKOUN RIVER	638	2141	90	299	125	429	1142	3892	0.196	1.986	446
447	HAANS CREEK	12	42	1	3	1	3	15	53	0.083	1.333	447
448	BONANZA CR.	2	7	1	3	1	3	3	10	0.500	2.000	448
	AREA TOTALS:	1124	3806	208	691	205	694	1651	5676	0.182	1.651	

Appendix 4 ANGLER DAYS AND CATCH SUCCESS, 1985-86

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
555	UNKNOWN STREAMS	538	1413	132	361	28	61	32	74	0.052	0.112	555
	TOTAL FOR ALL AREAS:	69713	215333	10752	32308	6213	18990	41294	125690	0.089	0.681	

Anglers who did not report no. of days fished are not included in this report

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
1	ADAM RIVER	12	38	4	12	0	0	30	96	0	0	0	0	1
2	AHNUHATI RIVER	3	7	3	7	2	4	0	0	0	0	0	0	2
3	AMOR DE COSMOS RIVER BEAR R.	13	44	10	34	0	0	15	51	0	0	0	0	3
5	ARTLISH RIVER	5	9	1	2	0	0	14	25	0	0	0	0	5
6	ASH RIVER	25	88	6	21	0	0	7	25	2	7	15	53	6
10	BIG QUALICUM RIVER QUALICUM R.	774	2553	182	609	1	4	190	615	113	359	269	781	10
11	BLACK CREEK	14	48	6	19	0	0	3	11	0	0	0	0	11
13	BROWNS RIVER	11	39	6	21	0	0	7	25	0	0	0	0	13
14	BURMAN RIVER	8	21	2	5	0	0	13	32	0	0	0	0	14
15	CAMPBELL RIVER	1322	4239	211	641	92	321	430	1455	86	283	815	2768	15
16	CAYCUSE RIVER	4	12	4	12	0	0	2	5	0	0	0	0	16
17	CAYEGHLE CREEK	2	7	2	7	0	0	5	18	0	0	0	0	17
19	CHEMAINUS RIVER	62	213	14	47	0	0	22	78	0	0	0	0	19
20	CHINA CREEK	23	81	12	42	0	0	22	78	0	0	0	0	20
21	CLUXEWE RIVER	68	229	23	79	0	0	44	155	8	28	22	78	21
24	CONUMA RIVER	2	7	2	7	0	0	1	4	0	0	0	0	24
25	COUS CREEK	3	11	2	7	0	0	2	7	0	0	0	0	25
26	COWICHAN RIVER COTTONWOOD,SKUTZ FAL	1654	5746	199	685	7	25	1227	4211	66	232	173	609	26
30	DAVIE RIVER	2	5	2	5	0	0	1	2	0	0	0	0	30
34	ENGLISHMAN RIVER	571	1963	108	364	0	0	263	907	30	103	233	804	34
36	EVE RIVER	19	66	8	27	0	0	29	101	0	0	0	0	36
38	FRANKLIN RIVER	3	10	2	7	0	0	2	7	0	0	0	0	38
39	FRENCH CREEK	20	71	5	18	0	0	2	7	0	0	0	0	39
41	GOLD RIVER UCONA R.	727	2425	157	501	0	0	1646	5556	15	50	43	148	41
42	GOLDSTREAM RIVER	22	78	3	11	0	0	65	230	1	4	0	0	42
44	GORDON RIVER	7	25	4	14	0	0	0	0	0	0	7	25	44
45	HARRIS CREEK	50	177	15	53	4	14	58	205	1	4	21	74	45
48	HEBER RIVER	11	24	6	14	0	0	35	82	0	0	0	0	48
56	KAKWEIKEN RIVER	4	13	1	3	0	0	1	3	0	0	0	0	56
57	KAOUK RIVER ROWLAND CR.	17	60	3	11	1	4	9	32	0	0	0	0	57
59	KEOGH RIVER	126	435	39	133	0	0	71	244	21	71	138	476	59
61	KINGCOME RIVER	8	26	1	3	0	0	8	26	0	0	0	0	61
63	KITSUCKSUS CREEK	2	7	1	4	0	0	2	7	0	0	0	0	63
64	KLANAWA RIVER	5	18	1	4	0	0	0	0	0	0	0	0	64
67	KOKISH RIVER	42	146	8	27	0	0	39	137	0	0	0	0	67
68	KOKSILAH RIVER	35	124	10	35	0	0	9	32	0	0	0	0	68
69	KOOTOWIS CREEK INDIAN R.	13	46	2	7	0	0	17	60	0	0	0	0	69
71	LEINER RIVER	7	24	4	14	0	0	0	0	0	0	0	0	71
73	LITTLE QUALICUM RIVE	860	2933	156	527	0	0	284	961	141	484	358	1190	73
79	MAHATTA RIVER	7	25	5	18	1	4	37	131	0	0	0	0	79
81	MARBLE RIVER AMAZON R.,LINK CR.	46	150	21	66	0	0	53	181	0	0	6	11	81
85	MILLSTREAM RIVER	12	42	2	7	0	0	22	78	3	11	5	18	85

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
86	MOHUN CREEK TROUT CR.	2	7	1	4	0	0	0	0	0	0	0	0	86
90	NAHMINT RIVER	13	45	9	31	0	0	30	103	0	0	0	0	90
91	NAHWITTI RIVER	31	108	9	31	0	0	66	228	0	0	0	0	91
92	NANAIMO RIVER	672	2347	101	348	0	0	252	883	31	109	43	152	92
93	NESOOK RIVER	1	4	1	4	0	0	0	0	0	0	0	0	93
94	NIMPKISH RIVER	182	633	43	147	0	0	199	697	0	0	1	4	94
95	NITINAT RIVER LITTLE NITINAT R.	6	21	3	10	0	0	4	14	0	0	0	0	95
97	OYSTER RIVER	483	1625	94	305	0	0	132	447	11	30	53	163	97
98	PACHENA RIVER	4	14	1	4	0	0	7	25	0	0	0	0	98
100	PERRY RIVER	3	11	2	7	0	0	0	0	0	0	0	0	100
101	PUNTLEDGE RIVER COURTENAY R.	344	1208	48	164	0	0	138	487	31	109	31	109	101
102	QUATSE RIVER	219	758	37	128	5	18	43	149	30	103	332	1160	102
103	QUINSAM RIVER	898	3090	133	439	2	7	407	1421	69	237	293	1016	103
104	ROBERTSON RIVER	13	46	2	7	2	7	7	25	0	0	1	4	104
107	SALMON RIVER BIGTREE CR.	80	261	34	106	0	0	54	167	1	3	2	7	107
109	SAN JUAN RIVER CLAPP,FLEET,GRANITE,	39	138	17	60	0	0	87	307	2	7	1	4	109
112	SARITA RIVER	22	78	11	39	0	0	36	127	3	11	2	7	112
115	SOMASS RIVER CHERRY CR.	905	3110	107	361	2	7	255	844	225	732	926	3159	115
117	SOOKE RIVER	13	45	7	24	1	3	3	11	0	0	1	4	117
118	SPROAT RIVER	162	565	27	91	0	0	41	144	29	102	247	870	118
120	STAMP RIVER	2809	9584	364	1178	44	154	929	3158	404	1370	1940	6746	120
122	SUCWOA RIVER	2	7	2	7	0	0	1	4	0	0	0	0	122
123	TAHSIS RIVER	17	60	2	7	0	0	5	18	0	0	0	0	123
125	TAYLOR RIVER	4	14	2	7	0	0	0	0	0	0	0	0	125
127	TOQUART RIVER	1	4	1	4	0	0	11	39	0	0	0	0	127
129	TRENT RIVER	25	88	8	28	0	0	4	14	0	0	0	0	129
130	TSABLE RIVER	8	28	4	14	0	0	0	0	0	0	0	0	130
132	TSOLUM RIVER	16	57	2	7	0	0	2	7	0	0	0	0	132
134	TSULQUATE RIVER	7	25	2	7	0	0	4	14	0	0	0	0	134
140	WAUKWASS CREEK	11	39	7	25	0	0	21	74	0	0	5	18	140
141	WHITE RIVER	6	20	4	13	0	0	7	24	0	0	0	0	141
144	WOSS RIVER	77	270	11	37	0	0	70	245	0	0	0	0	144
145	ZEBALLOS RIVER	37	125	7	22	9	32	25	71	1	3	0	0	145
151	CAMBELL/QUINSAM RIVE	34	120	4	14	0	0	100	353	4	14	41	145	151
153	STAMP/SOMASS	20	71	1	4	0	0	1	4	5	18	35	124	153
154	HYACINTHE BAY CREEK QUADRA ISLAND	2	7	1	4	2	7	0	0	0	0	0	0	154
	AREA TOTALS:	13789	46918	2362	7818	175	611	7628	25984	1333	4484	6059	20727	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86 (Lower Mainland)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
165	ALOUETTE RIVER SOUTH ALOUETTE R.	2718	8727	268	860	4	13	860	2761	189	607	635	2038	165
167	ASHLU CREEK	18	58	9	29	0	0	12	39	0	0	4	13	167
168	BEAR RIVER	6	19	1	3	0	0	3	10	1	3	0	0	168
170	BIG SILVER CREEK	5	16	2	6	0	0	0	0	0	0	0	0	170
171	BIRKENHEAD RIVER	2	6	1	3	0	0	0	0	0	0	0	0	171
174	BRUNETTE RIVER	6	19	4	13	0	0	2	5	0	0	0	0	174
175	CAPILANO RIVER BROTHERS CR.	583	1870	85	270	0	0	114	36[illegible]	20	64	40	128	175
176	CHAPMAN CREEK	21	67	3	10	0	0	3	10	1	3	0	0	176
177	CHEAKAMUS RIVER CHEEKYE R.	453	1450	115	366	0	0	582	1849	7	23	13	42	177
178	CHEHALIS RIVER STATLU CR.	880	2826	123	395	1	3	220	706	86	276	364	1169	178
179	CHILLIWACK RIVER VEDDER R.	11957	38228	1324	4204	58	186	3449	11047	669	2137	1186	3789	179
180	COGBURN CREEK	3	10	3	10	0	0	1	3	0	0	0	0	180
181	COQUIHALLA RIVER	197	624	68	214	3	10	85	270	4	13	56	178	181
182	COQUITLAM RIVER	260	835	43	138	1	3	87	279	2	6	7	22	182
184	DAKOTA CREEK	10	32	2	6	0	0	2	6	0	0	0	0	184
186	ELAHO CREEK	4	10	2	5	0	0	8	14	0	0	0	0	186
187	EMORY CREEK	2	6	1	3	0	0	0	0	0	0	0	0	187
188	FRASER RIVER	5330	16878	489	1535	205	645	156	492	36	112	23	73	188
190	GRAY CREEK	1	3	2	6	0	0	0	0	0	0	0	0	190
191	HARRISON RIVER	27	81	10	31	0	0	2	6	0	0	2	6	191
194	HORNET CREEK	1	3	1	3	0	0	0	0	0	0	3	10	194
196	INDIAN RIVER	3	10	3	10	1	4	1	4	0	0	0	0	196
197	KANAKA CREEK	76	244	14	45	0	0	41	132	4	13	8	26	197
199	LANG CREEK WOLFSOHN CR.	20	64	3	10	0	0	25	80	0	0	0	0	199
201	LILLOOET RIVER	6	19	4	13	0	0	2	6	0	0	0	0	201
202	LITTLE CAMPBELL RIVE	1230	3940	115	365	0	0	155	501	79	253	245	787	202
205	LYNN CREEK	24	77	9	29	0	0	5	16	0	0	0	0	205
206	MCNAB CREEK	2	6	3	10	0	0	0	0	0	0	0	0	206
207	MAMQUAM RIVER	21	68	12	39	0	0	4	13	0	0	1	3	207
209	MATSQUI SLOUGH	13	42	2	6	0	0	1	3	0	0	0	0	209
210	MORRIS CREEK	2	6	1	3	0	0	0	0	0	0	0	0	210
211	NAHATLATCH RIVER	22	68	9	28	0	0	38	118	0	0	0	0	211
213	NICOMEKL RIVER	261	838	40	128	1	3	29	93	9	29	11	35	213
214	NICOMEN SLOUGH DEWDNEY SLOUGH	21	67	4	13	0	0	0	0	1	3	0	0	214
215	NORRISH CREEK SUICIDE CR.	20	64	7	22	0	0	3	10	0	0	0	0	215
216	NORTH ALOUETTE RIVER	174	559	15	48	0	0	32	103	2	6	0	0	216
219	PITT RIVER	56	180	6	19	0	0	60	193	0	0	0	0	219
222	RAINY RIVER	15	48	3	10	0	0	1	3	0	0	0	0	222
223	ROBERTS CREEK	19	61	3	10	0	0	5	16	1	3	0	0	223
225	SALMON RIVER	8	26	3	10	0	0	2	6	0	0	0	0	225
227	SERPENTINE RIVER	23	74	6	19	0	0	3	10	2	6	0	0	227

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86 (Lower Mainland)

STR#	STREAM NAME	WILD DAYS FISHED REP	WILD DAYS FISHED EST	WILD NO. ANGLERS REP	WILD NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
228	SEYMOUR RIVER	962	3086	126	403	0	0	240	771	47	151	132	424	228
230	SILVERHOPE CREEK SILVER CR.	78	250	23	73	0	0	51	163	0	0	14	45	230
234	SPUZZUM CREEK	1	3	1	3	0	0	0	0	0	0	0	0	234
235	SQUAMISH RIVER	412	1314	125	396	0	0	312	997	2	5	8	24	235
236	STAVE RIVER	39	122	10	31	1	2	25	80	0	0	0	0	236
238	SUMAS RIVER	119	382	13	42	0	0	17	55	11	35	2	6	238
243	TZOONIE RIVER	1	3	1	3	0	0	0	0	0	0	0	0	243
244	VANCOUVER RIVER	11	35	1	3	0	0	0	0	0	0	0	0	244
246	WEAVER CREEK	9	29	8	26	0	0	10	32	2	6	4	13	246
247	WEST CREEK	14	45	1	3	0	0	1	3	0	0	0	0	247
248	WHONOCK CREEK	10	32	1	3	0	0	5	16	0	0	0	0	248
249	WIDGEON CREEK	1	3	1	3	0	0	0	0	0	0	0	0	249
250	WILSON CREEK	3	5	1	2	0	0	0	0	0	0	0	0	250
251	RUBY CREEK	1	3	1	3	0	0	0	0	0	0	0	0	251
252	GIFFORD CRK	1	3	1	3	0	0	1	3	0	0	0	0	252
	AREA TOTALS:	26162	83544	3132	9944	275	869	6655	21291	1175	3754	2758	8831	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86 (Kamloops)

STR#	STREAM NAME	WILD DAYS FISHED REP	WILD DAYS FISHED EST	WILD NO. ANGLERS REP	WILD NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
272	BRIDGE RIVER	5	14	1	3	0	0	0	0	0	0	0	0	272
273	CAYOOSH RIVER	33	96	3	9	0	0	10	29	0	0	0	0	273
275	NICOLA RIVER	9	26	3	9	1	3	0	0	0	0	0	0	275
276	SETON RIVER	9	27	2	6	0	0	0	0	0	0	0	0	276
277	STEIN RIVER	1	3	1	3	0	0	0	0	0	0	0	0	277
278	THOMPSON RIVER	5068	14073	976	2763	671	1868	1422	3830	44	117	70	177	278
	AREA TOTALS:	5125	14239	986	2793	672	1871	1432	3859	44	117	70	177	

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
280	ASSEEK R.	8	25	1	3	0	0	0	0	0	0	0	0	280
300	ATNARKO RIVER	361	1044	73	206	43	131	99	273	0	0	4	8	300
301	BELLA COOLA RIVER SNOOTLI CR.	1040	2903	179	493	145	406	582	1485	0	0	10	23	301
303	CHILCOTIN RIVER ALEXIS CR,CHILANKO R	159	452	52	151	15	45	131	364	0	0	0	0	303
304	CHILKO RIVER	14	33	8	19	1	2	0	0	0	0	0	0	304
305	CHUCKWALLA RIVER	96	173	28	51	38	69	186	330	0	0	0	0	305
306	CLYAK RIVER	5	15	1	3	0	0	1	3	0	0	0	0	306
307	DEAN RIVER	1975	4573	332	766	220	537	3723	8223	11	21	43	87	307
308	KILBELLA RIVER	28	61	11	22	8	14	38	70	0	0	0	0	308
312	MACHMELL RIVER	1	2	1	2	0	0	2	4	0	0	0	0	312
313	NEKITE RIVER	7	17	2	5	1	3	12	27	0	0	0	0	313
314	NOEICK RIVER	10	31	1	3	0	0	3	9	0	0	0	0	314
320	TALEOMEY RIVER	8	25	1	3	2	6	6	19	0	0	0	0	320
	AREA TOTALS:	3712	9354	690	1727	473	1213	4783	10807	11	21	57	118	

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
325	BABINE RIVER	1156	2478	197	438	50	129	1572	3516	3	5	50	94	325
327	BELL IRVING RIVER	1	2	1	2	0	0	0	0	0	0	2	4	327
328	BISH CREEK	1	4	1	4	0	0	1	4	0	0	0	0	328
329	BULKLEY RIVER BOULDER,CHICKEN,TOBO	3492	10323	544	1526	305	942	1549	4407	3	7	14	35	329
330	BULKLEY/MORICE RIVER	118	315	12	32	8	27	98	226	0	0	0	0	330
331	CANOONA RIVER INDIAN R.	8	28	3	11	0	0	2	7	0	0	0	0	331
332	CEDAR CREEK	6	20	2	5	0	0	2	7	0	0	0	0	332
333	CLORE RIVER	58	197	15	48	8	29	59	182	0	0	0	0	333
334	CRANBERRY RIVER	392	1180	125	383	74	229	329	1038	0	0	0	0	334
335	DALA RIVER	10	36	4	14	1	4	35	125	0	0	0	0	335
336	DAMDOCHAX CREEK BLACKWATER R.	32	59	7	14	1	2	87	154	0	0	0	0	336
337	ECSTALL RIVER FALLS R.	2	7	1	4	1	4	3	11	0	0	0	0	337
339	EXCHAMSIKS RIVER	4	13	2	7	0	0	0	0	0	0	0	0	339
342	GITNADOIX RIVER	17	59	5	17	1	4	7	25	0	0	0	0	342
343	ILLIANCE RIVER	2	6	1	3	0	0	0	0	0	0	0	0	343
344	INKLIN RIVER	1	2	1	2	1	2	0	0	0	0	0	0	344
345	ISHKEENICKH RIVER	92	324	21	73	12	42	102	362	0	0	0	0	345
348	KEMANO RIVER	15	54	1	4	7	25	3	11	0	0	0	0	348
350	KHYEX RIVER	2	7	1	4	0	0	0	0	0	0	0	0	350
351	KILDALA RIVER	2	7	1	4	0	0	0	0	0	0	0	0	351
354	KISPIOX RIVER SWEETIN R.	1135	2695	216	543	52	142	815	1883	1	2	12	29	354
355	KITEEN RIVER	50	166	27	89	10	32	29	91	0	0	0	0	355
356	KITIMAT RIVER HIRSCH,LITTLE WEDEEN	1269	4322	151	494	104	369	299	1032	0	0	6	14	356
358	KITSEQUECLA RIVER	14	49	5	17	1	4	13	46	0	0	0	0	358
359	KITSAULT RIVER	4	13	1	3	0	0	0	0	0	0	0	0	359
360	KITSUMKALUM RIVER BEAVER R.,KALUM R.	1269	4399	199	668	127	431	571	1971	0	0	3	11	360
362	KITWANGA RIVER	19	63	9	28	4	14	62	221	0	0	0	0	362
364	KLOIYA RIVER	161	559	17	57	9	30	163	579	0	0	1	4	364
365	KLUATANTAN RIVER	17	30	3	5	0	0	28	50	0	0	0	0	365
368	KWINAGEESE RIVER	1	4	1	4	0	0	0	0	0	0	0	0	368
369	KWINAMASS RIVER	26	79	10	31	2	6	22	66	0	0	0	0	369
370	LACHMACH RIVER	1	2	1	2	0	0	0	0	0	0	0	0	370
371	LAKELSE RIVER COLDWATER,WILLIAMS C	931	2996	167	519	55	187	379	1322	2	7	5	16	371
372	MEZIADIN RIVER	44	153	15	51	6	21	9	32	0	0	0	0	372
373	MORICE RIVER	1412	4269	271	791	112	346	717	1933	0	0	18	41	373
374	MUSSEL RIVER	3	10	1	3	0	0	0	0	0	0	0	0	374
375	NAHLIN RIVER	20	61	3	8	0	0	7	12	0	0	0	0	375
376	NAKINA RIVER	54	131	12	30	6	20	66	186	0	0	0	0	376
378	NASS RIVER	156	428	43	119	15	44	152	348	0	0	1	2	378
379	NILKITKWA RIVER	2	5	2	5	0	0	0	0	0	0	0	0	379
382	SHEGUNIA RIVER	1	4	1	4	0	0	0	0	0	0	0	0	382

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
385	SKEENA RIVER BOULDER,FIDDLER,KWIN	5288	15061	724	2015	683	1880	1447	4163	12	34	38	88	385
386	STIKINE RIVER	15	36	7	19	3	10	0	0	0	0	0	0	386
387	SUSKWA RIVER BEAR R.	74	219	29	78	0	0	117	357	0	0	0	0	387
388	SUSTUT RIVER BEAR R.	297	622	62	147	27	61	208	456	0	0	1	3	388
390	TAHLTAN RIVER	57	173	15	47	36	112	53	153	0	0	0	0	390
391	TAKU RIVER	13	23	6	11	4	7	14	25	0	0	0	0	391
392	TATSAMENIE RIVER TATSATUA R.	6	11	1	2	2	4	0	0	0	0	0	0	392
394	TELKWA RIVER	29	87	14	44	1	4	13	31	0	0	0	0	394
395	TSEAX RIVER	163	486	58	174	23	76	83	270	0	0	0	0	395
399	ZYMAGOTITZ RIVER ZIMACOR R.	53	185	9	28	3	11	16	54	0	0	0	0	399
400	ZYMOETZ RIVER COPPER R.	1267	3890	217	635	127	408	866	2626	1	4	20	36	400
	AREA TOTALS:	19263	56352	3242	9266	1881	5658	9998	27982	22	59	171	377	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86 (Queen Charlotte Islands)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
429	COPPER CREEK	91	317	21	70	12	41	65	230	0	0	0	0	429
430	DATLAMEN CREEK	2	7	1	4	0	0	1	4	0	0	0	0	430
431	DAVIDSON CREEK	15	27	1	2	1	2	4	7	0	0	0	0	431
432	DEENA CREEK	69	244	14	49	4	14	82	290	0	0	0	0	432
434	HIELLEN RIVER	14	50	4	14	2	7	20	71	0	0	0	0	434
435	HONNA RIVER	41	146	14	50	10	36	41	146	0	0	0	0	435
436	MAMIN RIVER	97	339	20	69	22	72	100	357	0	0	0	0	436
437	MATHERS CREEK	7	23	4	14	1	3	9	31	0	0	0	0	437
438	NADEN RIVER	1	2	1	2	1	2	0	0	0	0	0	0	438
439	PALLANT CREEK	39	138	12	42	4	14	52	185	0	0	0	0	439
	MORESBY L.,MOSQUITO													
441	SANGAN RIVER	3	11	1	4	0	0	0	0	0	0	0	0	441
442	SKEDANS CREEK	9	31	2	7	0	0	46	162	0	0	0	0	442
445	TLELL RIVER	84	294	21	72	21	75	71	247	0	0	0	0	445
446	YAKOUN RIVER	638	2146	90	303	125	431	1140	3889	0	0	2	6	446
447	HAANS CREEK	12	43	1	4	1	4	15	54	0	0	0	0	447
448	BONANZA CR.	2	7	1	4	1	4	3	11	0	0	0	0	448
	AREA TOTALS:	1124	3825	208	710	205	705	1649	5684	0	0	2	6	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1985-86

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
555	UNKNOWN STREAMS	538	1418	132	366	25	56	25	59	3	8	7	16	555
	TOTAL FOR ALL AREAS:	69713	215650	10752	32624	3706	10983	32170	95666	2588	8443	9124	30252	

Anglers who did not report no. of days fished are not included in this report.

Appendix 6 - ACTIVE ANGLERS IN EACH RESIDENT AREA ACCORDING TO THE NUMBER OF STEELHEAD KEPT

RESA		CATCH CLASS 0	1 - 5	6 - 10	11 - 20	21 - 30	31 - 40	UNKNOWN	TOTAL
1	REP	510	275	64	3	0	2	0	854
	EST	1803	972	226	11	0	7	0	3019
	%	59.7	32.2	7.5	0.4	0.0	0.2	0.0	
2	REP	1522	687	68	3	1	1	0	2282
	EST	4891	2208	219	10	3	3	0	7334
	%	66.7	30.1	3.0	0.1	0.0	0.0	0.0	
3	REP	155	147	3	0	0	0	0	305
	EST	450	426	9	0	0	0	0	885
	%	50.8	48.2	1.0	0.0	0.0	0.0	0.0	
4	REP	39	17	1	0	0	0	0	57
	EST	111	48	3	0	0	0	0	162
	%	68.4	29.8	1.8	0.0	0.0	0.0	0.0	
5	REP	103	102	4	0	0	0	0	209
	EST	319	316	12	0	0	0	0	647
	%	49.3	48.8	1.9	0.0	0.0	0.0	0.0	
6	REP	420	468	30	0	0	0	0	918
	EST	1502	1674	107	0	0	0	0	3283
	%	45.8	51.0	3.3	0.0	0.0	0.0	0.0	
7	REP	181	140	3	0	0	0	0	324
	EST	566	438	9	0	0	0	0	1013
	%	55.9	43.2	0.9	0.0	0.0	0.0	0.0	
8	REP	97	71	1	0	0	0	0	169
	EST	271	198	3	0	0	0	0	472
	%	57.4	42.0	0.6	0.0	0.0	0.0	0.0	
9	REP	283	210	3	0	0	0	0	496
	EST	513	381	5	0	0	0	0	899
	%	57.1	42.3	0.6	0.0	0.0	0.0	0.0	
0	REP	618	318	6	2	1	0	0	945
	EST	1098	565	11	4	2	0	0	1680
	%	65.4	33.7	0.6	0.2	0.1	0.0	0.0	
TOTAL	REP	3928	2435	183	8	2	3	0	6559
	EST	11524	7226	604	25	5	10	0	19394
	%	59.9	37.1	2.8	0.1	0.0	0.0	0.0	

Appendix 7 - ACTIVE ANGLERS IN EACH RESIDENT AREA ACCORDING TO THE NUMBER OF DAYS FISHED

RESA		DAYS FISHED CLASS 1 - 5	6 - 10	11 - 30	31 - OV	UNKNOWN	TOTAL
1	REP	324	187	221	99	23	854
	EST	1145	661	781	350	81	3018
	%	37.9	21.9	25.9	11.6	2.7	
2	REP	954	494	583	211	40	2282
	EST	3065	1587	1873	678	129	7332
	%	41.8	21.6	25.5	9.2	1.8	
3	REP	174	70	48	9	4	305
	EST	505	203	139	26	12	885
	%	57.0	23.0	15.7	3.0	1.3	
4	REP	40	10	5	0	2	57
	EST	114	28	14	0	6	162
	%	70.2	17.5	8.8	0.0	3.5	
5	REP	109	50	39	9	2	209
	EST	337	155	121	28	6	647
	%	52.2	23.9	18.7	4.3	1.0	
6	REP	377	209	239	76	17	918
	EST	1348	748	855	272	61	3284
	%	41.1	22.8	26.0	8.3	1.9	
7	REP	222	71	23	1	7	324
	EST	694	222	72	3	22	1013
	%	68.5	21.9	7.1	0.3	2.2	
8	REP	108	37	23	0	1	169
	EST	301	103	64	0	3	471
	%	63.9	21.9	13.6	0.0	0.6	
9	REP	294	139	48	5	10	496
	EST	533	252	87	9	18	899
	%	59.3	28.0	9.7	1.0	2.0	
0	REP	383	399	125	17	21	945
	EST	681	709	222	30	37	1679
	%	40.5	42.2	13.2	1.8	2.2	
TOTAL	REP	2985	1666	1354	427	127	6559
	EST	8723	4668	4228	1396	375	19390
	%	45.5	25.4	20.6	6.5	1.9	

Appendix 8. Steelhead licencees, active and successful anglers, catch and angling effort (1966-67 to 1985-86).

Year	Licencees	Active Anglers	Successful Anglers (%)	Total Catch	Days Fished	Catch/ Successful Angler	Days Fished/ Active Angler	Catch/ Angler Day
66-67*	44,100	32,077	4,208(40.9)		N/A			
67-68	39,388	22,289	8,167(37.0)		209,435		9.4	
68-69	39,775	19,789	7,820(41.7)		189,273		9.6	
69-70	45,824	24,515	8,338(36.7)		250,680		10.2	
70-71	43,750	23,533	8,131(35.2)	53,858	232,664	6.6	9.9	0.231
71-72**	26,253	18,270	7,934(44.5)	61,428	184,978	7.7	10.1	0.332
72-73	28,992	19,489	8,165(42.7)	61,452	203,393	7.5	10.4	0.302
73-74	31,315	20,291	8,282(41.1)	58,695	208,105	7.1	10.3	0.282
74-75**	24,399	16,469	7,296(46.5)	51,652	196,751	7.1	11.9	0.263
75-76	29,594	20,265	8,770(45.8)	58,036	219,797	6.6	10.8	0.264
76-77	25,539	18,356	6,998(40.3)	40,618	186,381	5.8	10.2	0.218
77-78	25,406	17,143	7,038(43.2)	45,201	174,721	6.4	10.2	0.259
78-79	24,600	15,788	6,746(44.2)	39,448	159,363	5.8	10.1	0.265
79-80	25,095	14,755	6,384(45.0)	39,569	134,569	6.2	9.1	0.314
80-81	22,276	12,894	6,388(50.7)	50,924	131,886	8.0	10.2	0.406
81-82	21,741	12,970	6,175(48.0)	57,704	126,145	9.3	9.7	0.463
82-83**	20,856	14,475	7,686(54.3)	74,109	148,892	9.6	10.3	0.517
83-84	20,576	14,918	8,547(57.7)	98,622	173,432	11.5	11.6	0.566
84-85	23,236	17,567	10,581(61.6)	147,838	207,370	14.0	11.8	0.730
85-86	25,619	19,399	11,148(58.7)	145,344	215,650	13.0	11.1	0.681

* Estimated on the basis of incomplete licencing data.
** Increase in steelhead licence fees.

Appendix 9. Estimated annual steelhead catch (1966-67 to 1985-86).

	Wild		Hatchery		Combined Catch		
Year	Kept	Released	Kept	Released	Kept	Released	Total
66-67					77,513	?	
67-68					48,508	?	
68-69					41,403	?	
69-70					37,092	?	
70-71					33,919	19,939	53,858
71-72					36,704	24,724	61,428
72-73					35,782	25,670	61,452
73-74					32,482	26,213	58,695
74-75					27,807	23,845	51,652
75-76					31,490	26,546	58,036
76-77					20,168	20,450	40,618
77-78					18,246	27,093	45,201
78-79					14,700	24,748	39,448
79-80					12,663	26,906	39,569
80-81					10,941	39,983	50,924
81-82	8,604	43,139	1,361	4,600	9,965	47,739	57,704
82-83	10,849	54,259	2,634	6,367	13,483	60,626	74,109
83-84	10,578	68,926	4,506	13,612	15,084	83,538	98,662
84-85	11,648	107,301	7,261	21,628	18,909	128,929	147,838
85-86	10,983	95,666	8,443	30,252	19,426	125,918	145,344

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